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Vol. XXII MOTOR BOATING No. 4

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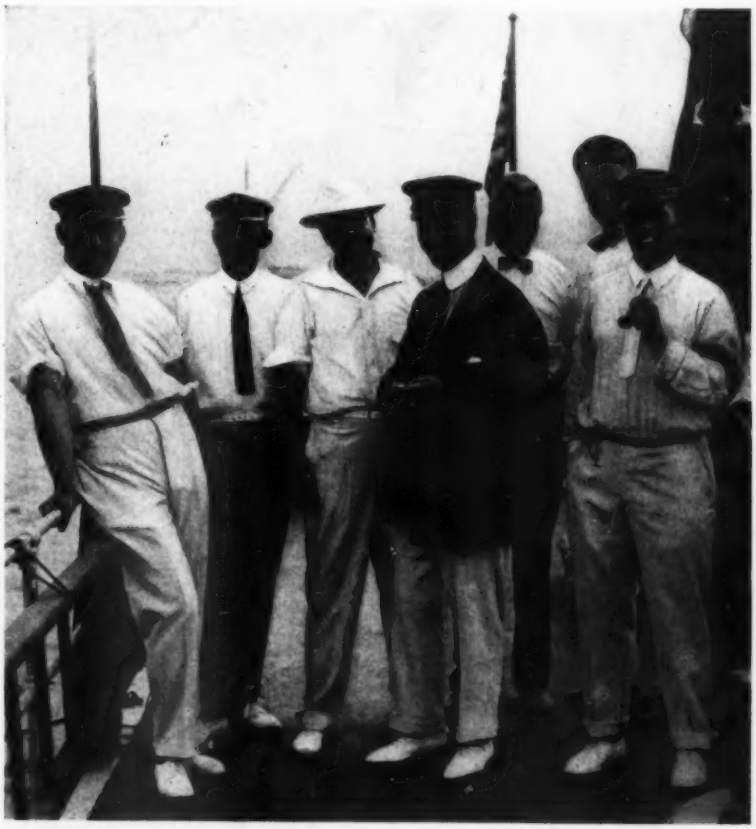
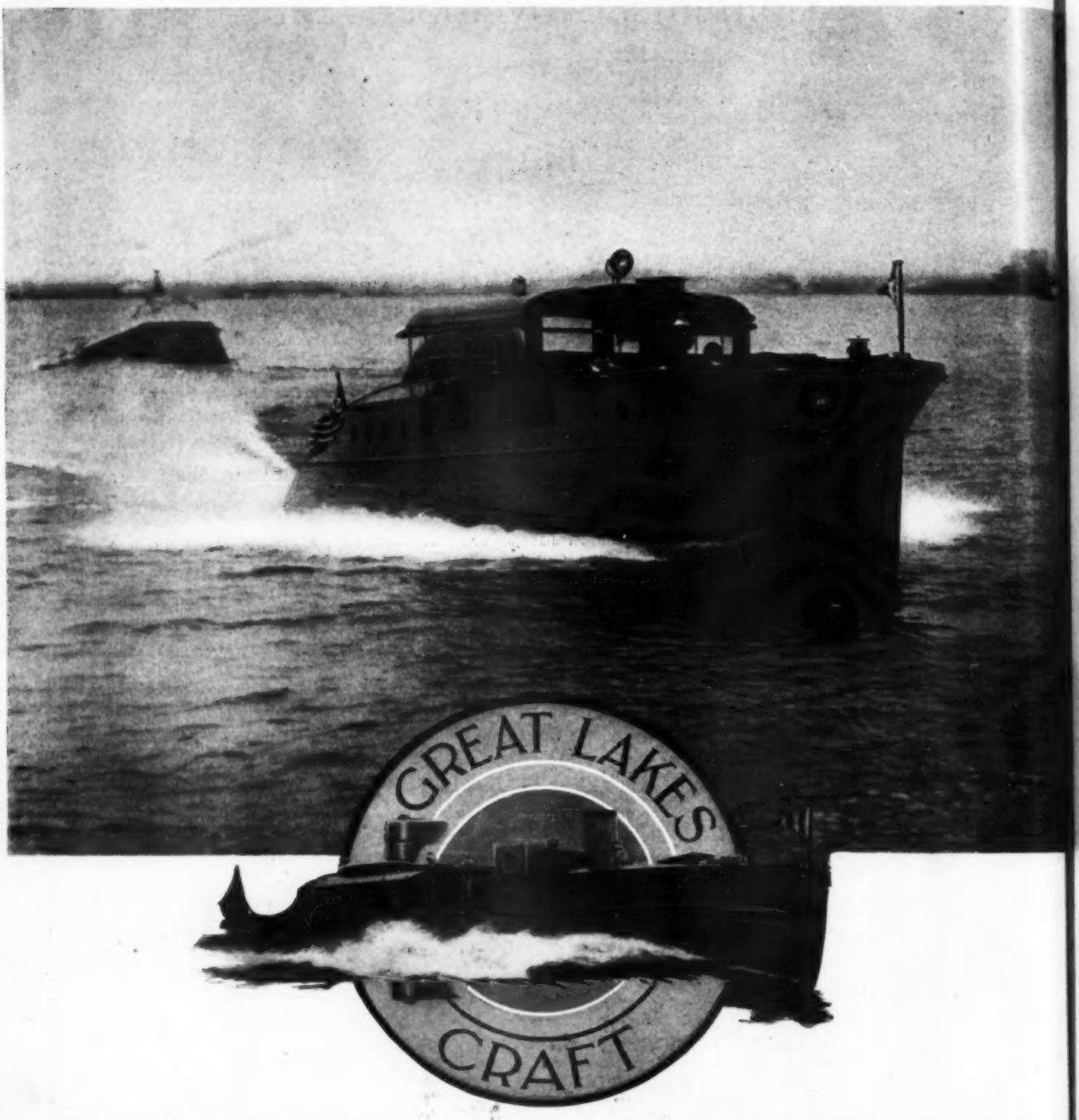
Photographed by M. Rosenfeld



A Gold Cup Committee of three years ago—now all serving their country

MoToR BoatinG in its new form and its patriotic size has been received with wide open arms everywhere. Many of our subscribers have written in expressing their pleasure that we were to continue to be a publication devoted to strictly boating subjects and that we were not to attempt to voyage on strange waters. Many of those who anchor nearby have called us on the telephone telling us that they have read every issue of MoToR BoatinG since the first and would continue to do so until their colors are hauled down for the last time. Such words of kindly feeling, appreciation of our efforts, and good wishes for the future encourage use to do even greater things than ever before. MoToR BoatinG, as heretofore, will be published for the motor boatmen and its readers. Only articles of real boating interest will be printed. Articles by authorities, and written by men who really know, will continue to make the publication the leader in its field.



The remarkable organization and equipment built up by the Great Lakes Boat Building Corporation in its development of the Standardized Express Cruiser and large production of boats of quality and distinction, is now 100% engaged in Government Work, such as the construction of Submarine Chasers, Harbor Tugs, Airplane Propellers, etc.

The condition naturally precludes our taking on any contracts for Private Delivery until after the present emergency, but correspondence is cordially invited covering plans and specifications of boats to be built for delivery after the war is won, when our facilities will be even larger and more efficient than they have been in the past.

GREAT LAKES BOAT BUILDING CORPORATION **Milwaukee, Wis.**

Designers and Builders of Boats of Distinction and Quality

A bunch of 110-foot submarine chasers at the builder's yard. These boats are powered with three Standard motors

Government to Protect Marine Industry

Advises Engine Builders to Continue Their Organizations During the War—Authorizes Appointment of a Committee to Present All Claims to the Government

THE Government has asked the marine engine manufacturers not to disrupt their organizations during the war period but to continue manufacturing and planning for the future when peace arrives and conditions become normal again. The Government does suggest, however, that all unnecessary and obsolete designs and models of engines be done away with and that the whole industry be standardized with the idea of abolishing duplications of power plants of similar size, power, speed, weight, etc., as far as possible and eliminating all unnecessary labor and waste of time and material. Such a cleaning out and overhauling of the industry, the manufacturers agree, has been needed for a long time and perhaps would do more than any one thing to elevate it to a plane where it belongs. Consequently the Government's suggestion has met with most hearty words of approval from all sides.

At a meeting held recently in Washington at which nearly all builders of marine motors were invited to be present, W. H. Manss, formerly vice-president of the Baltimore and Ohio Railroad and now a representative of the Government charged with the duty of organizing all branches of American industries for war work as well as perfecting plans for the continuation of business after peace has been declared, outlined to the marine engine manufacturers what had been done in the other trades along standardization lines. The speaker emphasized particularly the fact that the Government desires every manufacturer to keep his organization together during these strenuous times, getting into war work as far as possible, but when this is not possible that each continue right along his special line of endeavor until normal times return once more.

The nature or kind of war work which it was suggested that the engine builders get into is immaterial. Furthermore, quantity or lack of quantity of production should be no barrier. Even if the limit were only two or three pieces of ammunition per day or one gun a year, provided their plant was particularly adapted for this kind of production along lines laid out by the Government without disrupting the organization of their plant, then such work should be seriously considered. If shells, ammunition or the like could not be manufactured to advantage it is the duty of the manufacturer to confer with the Government officials to find some of the millions of articles of which the Government is in urgent need that could be manufactured.

It was pointed out that a very important branch of the Government's activities at present consists in determining its needs and then organizing all industries so that these needs may be best met, and work assigned to those best qualified to perform the particular duties, both as regards labor, material, and the numerous other phases entering therein. Examples were cited of the great savings which have been made in many industries, in material, transportation, time, fuel, labor, storage space, etc., by simplifying production, standardizing models and curtailing all unnecessary styles and decorations.

For the carrying on of a successful war program in France one of the most important things to remember is that business at home must be disturbed as little as possible. Nothing is more discomforting to the soldier's determination to fight with all his might than to know that all is not well with his family, his relatives, and the American people generally at home. A soldier sick at heart is little better than useless on the battlefield. To assure a condition of business and domestic prosperity at

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The distribution of this issue of MoToR BoatinG is delayed owing to industrial difficulties in the printing plants of New York City

What a Naval Training Station Really Is

At the Pelham Bay Camp the Enlisted Man Is Given an Opportunity to Become an Officer in Our Navy

By T. W. Rockwell

Photographs by Rosenfeld

The use of nautical instruments can be taught ashore as well as afloat

The use of the pelorus and sextant must be mastered by every deep-sea mariner

UP at the western end of Long Island Sound is one of Uncle Sam's most interesting training camps. On a tract of approximately 280 acres extending along the bay from Pelham Parkway to Rodman's Neck there has been built in less than one year a "war city" of no mean size. At the present time the population of this city is something over 15,000, but it will not be long before it reaches the 25,000 mark.

Pelham Bay Naval Training Camp affords probably the greatest opportunity for the ambitious enlisted man to raise himself above his initial status. The field of study, initiative and advancement is practically unbounded to the man of average intelligence, adaptability, and executive ability.

Within the boundaries of the camp there are about 450 buildings all told. The barracks alone, ranged end to end, would stretch for three miles across the country. One of the features of the camp is the new Drill Hall, a building 528 x 202 feet, the roof trusses having a clear span of 101 feet. There are also two Y. M. C. A. buildings and what the men probably consider three times a day the most important of all, a bakery having a capacity of 3,000 loaves of real all-white flour bread and untold numbers of pies and other things of like nature. Then there is the ninety-acre hospital tract with its rows of buildings that serve not only for the training camp but also, under a separate organization, as a fleet hospital for the men of the local fleets.

With the large number of men in training at one time it is practically impossible to provide sufficient floating equipment, so the recruit receives his first introduction to things nautical while safely on shore. The numerous large trees about the camp are pressed into service as boat davits, masts, or other standing rigging. Here in one place will be found a group of men learning to launch and hoist aboard the gigs and cutters, with the stout limb of a tree as davits, while in another place are men learning to use rope ladders and to walk foot ropes, with the trees again pressed into service.

In the same way the jackies are learning to box the compass, correct for variation and deviation, heave the lead, take bearings and Azimuth with a Pelorus and even shoot the sun with a sextant while still on land. Later in the course of training they perform these same tasks afloat and are given an opportunity to try out their knowledge under actual working conditions.

Probably the most realistic bit of ships equipment reproduced on shore is a mast fitted with six cargo booms and the necessary steam winches. Here the men are taught how to place slings about the bundles and cases that go to make up a ship's supplies, how to handle whips and hoists as they are used aboard ship, and how to operate and care for the hoisting equipment.

The course of training is progressive, and as soon as one course is

successfully completed and the men demonstrate their ability they become eligible for a more advance course. An outline of the courses of training and the career that is open to an enlisted man at this camp can be briefly outlined as follows:

First—The "inoculation period" of three weeks in Isolation Camp where the rookie is vaccinated and given three inoculations for typhoid and during which time he must pass an examination covering the following:

Naval regulations—Article of U. S. Navy, care of clothing, bag inspection, school of squad and manual of arms, general orders to sentries, knots, hitches, and splices, signals (semaphore and wigwag), pulling an oar, U. S. Navy ranks and insignia, compass, lead and log, setting-up drills, relative bearings of objects from ship by points and degrees.

Second — The one month's course in seamanship in one of the training regiments. At the end of this month if a man proves by his examination paper plus the report of his superior officers that he is made of the right material he is sent to the Petty Officers' School, where he receives approximately three weeks' training in infantry, advanced seamanship and handling men. Making good here he is given a station rating as a Petty Officer and assigned to take charge of a squad of men in the Isolation Camp in order to test his abilities in handling men and instructing them in rudimentary seamanship.

Third—A petty officer is examined after the month's work in handling his squad and upon this examination, if he is successful, becomes available material for the Officers' Material School.

Fourth—The course in the Officers' Material School covers a period of two months, during which time the candidate performs the duties of chief petty officers and ensigns in the training regiments.

Fifth—If at the end of this period a man passes his examination at the Officers' Material School and is recommended by the officers of the instruction staff, he is available for duty as an officer.

Besides the regular Petty Officers' School there are four other schools which turn out Petty Officers with permanent ratings, the Radio school, Quartermaster, Gunnery and Boatswain Mate schools. In all of

(*Continued on page* 20)

It would be practically impossible to train aboard ship every one of the twenty odd thousand men at Pelham

But every opportunity is given them to become familiar with the use of the instruments used in navigation

Photographs by Rosenfeld

The Way Ford Manufactures Boats

The Application of Up-To-Date Automobile Production Methods to Marine Practice for the First Time

By Charles F. Chapman

Drawings by T. W. Rockwell

HENRY FORD of Detroit is building boats for the United States Government in a way which some boat builder some day will build motor boats for the yachtsmen of the country. The boats which Ford is building are not exactly of the type and kind which motor boatmen would desire for their own needs, yet the process of manufacture is there and it is just as applicable to the production of pleasure and commercial motor craft in great numbers as it is to the Eagle group of submarine chasers. When the some one does get in the business of really manufacturing motor boats in quantity instead of building them one by one, each an individual job as at present, then his fortune is made.

When the Navy Department decided that one way to lessen the U-boat menace was to have an immense number of chasers—literally swarms of them—patrolling every port of the seas from shore to shore and from Arctic circle to the Antarctic circle, the department was up against the problem of not only choosing the correct type of boat for combating the undersea craft, which could be built in sufficient quantity and rapidity, but they were up against the even greater problem of who could build the boats. No existing plant was available which could measure up to the Government's requirements. Therefore the Navy Department turned to a source entirely outside of the marine field and Ford thought he could do it. He has made a good start, everything considered, and although the work is far from completed, yet it is going better every day.

Building boats in quantity is a far different proposition from building motor cars by the thousands as Ford has found out. He had to begin with little or no knowledge of the trade other than his ability as an organizer and production expert and with no similar enterprise in existence whose mistakes could be studied and eliminated. The building up of an organization and plant to produce a few thousand cars a day had taken years, not to mention the millions of dollars expended. In the case of building boats time was the most important factor and this manufacturer, with all his immense fortune, could not purchase time—not even a single day of it.

I DON'T believe in war. It is unbelievable to me that any man with a shadow of love for his fellow beings should believe in war with its unutterable cruelties and barbarism, but I do believe in THIS war. I believe in it because it is a war against all wars. When it is fought to a victorious end by the United States and our Allies, as it surely will be, we can impose upon the world such terms as will make impossible forever the renewal of any projects of military aggression and world conquest. We can and will limit armaments, both military and naval, in all the world, not of Germany alone, but of our own associates—and of ourselves as well, for we must be on guard lest triumph breed militarism in our own land.

I was convinced, as soon as I had an opportunity to study the war situation in Europe at first hand, that this war could be ended only by crushing the foes of peace. Ever since I returned from the Peace Ship expedition I have devoted all my thought, energies and resources to this end.

The making of weapons is not the only war service that men engaged in industrial pursuits can perform. My farm tractor, which will multiply several times the productive ability of a man, is as truly a war weapon as is one of the Eagle ships.

Nor is fighting with guns the sole method of waging a righteous war. The war upon monopoly and privilege, upon monopoly of money, of credit, of opportunity in this country is just as important as any action on the River Marne. I don't know Mr. Hearst, have never met him, but he has been waging this war, and when I saw that all the big interests were attacking him, I said to myself, "That man's all right," and I have had no reason to change my opinion.

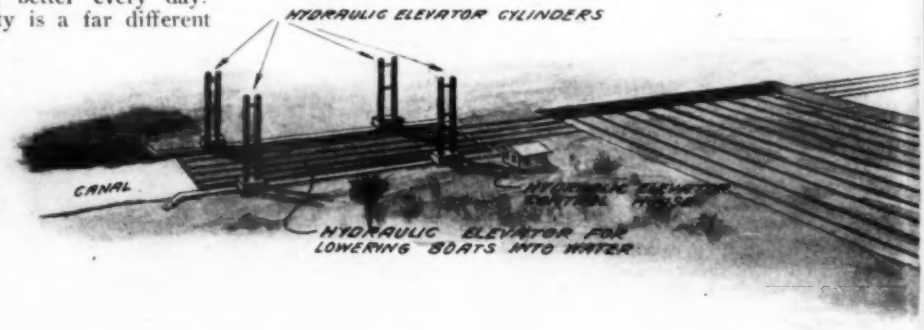
Henry Ford

Mr. Ford writes a letter expressing his opinion on the question of wars. After you have read this article describing just one of the ways which Ford is helping to win this war you will not doubt his sincerity or loyalty

Literally Ford started from nothing. As a location for his factory he chose a spot several miles from Detroit, in the fields, not even on the water or on a railroad, although it was reasonably near both. To reach the water, he dredged a canal to the Detroit River, a mile or thereabouts away from the location of the plant, large enough to float a freighter. To connect with the railroad he built a system of spur tracks which resemble the car storage yards for the New York Central just outside of New York and makes the main line with which the spurs connect look like a narrow gauge piker railroad.

The main building in which the boats are built went up in a few hours. It is upwards of 1,600 feet long, and a fire-proof and modern building in every particular. According to Ford's way of thinking, modern boat building methods are all old fashioned. He wanted none of them and consequently discarded just 100 per cent. of them.

Ford builds the boats according to his own ideas. Ways and all their troublesome allies are done away with. Eighteen chasers are built at one time, although each is in a different stage of construction so that there will be no waste or idle moments. Three railways run into the main building. On



each of these three railways are six specially constructed flat cars placed end to end. A keel is laid on each flat car and a chaser is constructed entirely on its own particular car and when a hull is done and ready for launching, out of the building it goes on its own car and the other five cars and boats in the same row are all moved up a peg nearer the door and leave room for another car at the far end on which a new keel is laid.

The method of launching the Eagles is as characteristic of Ford as the rest of the production methods. A completed hull is moved on its flat car out of the main building onto a sort of a table or transfer carriage which rests on a dozen or more tracks running at right angles to the tracks in the building in which the boats are constructed. This transfer carriage is electrically driven and moves the boat and its car over to the end of the canal running to the Detroit River and into which the chasers are launched.

The boat and its car are next moved to the launching elevator on permanent tracks on the elevator which are laid at right angles to and connecting with the transfer tracks. The launching elevator is an immense affair as one can well imagine. It is hydraulically controlled and one man can raise it or lower it by adjusting and regulating four valves. When the chaser is on the elevator a signal is given to the operator and down goes the elevator, car, boat, and all into the canal. Elevator and car sink to the bottom and the boat floats off and is towed to the machine shop a few hundred yards down the canal, where the power plant is installed.

All of the launching from the time the boat and its car begins to move from its building position to the moment it floats for the first time takes less time than to tell about it.

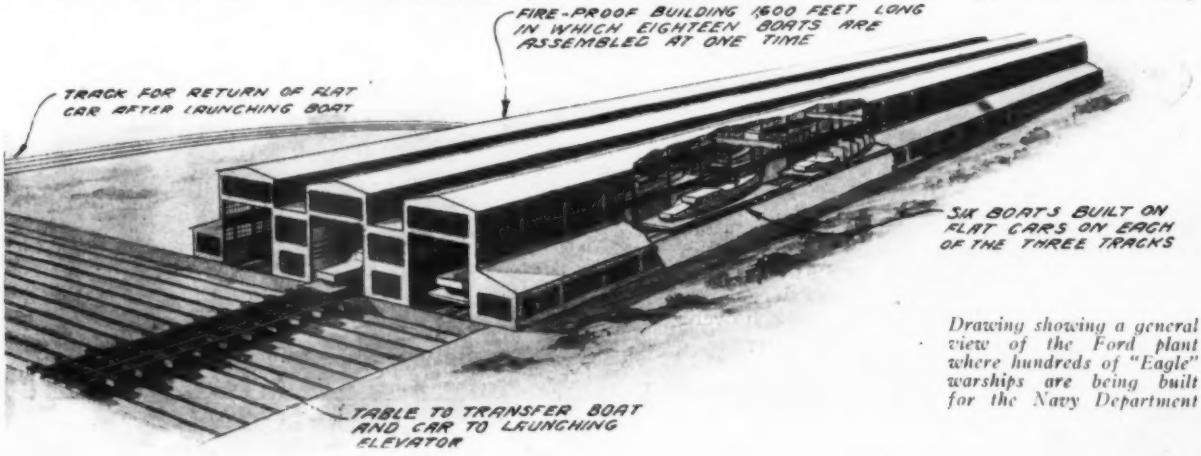
Henry Ford, who is building Eagle boats for the Government

Launching an Eagle by lowering it into the water on an elevator

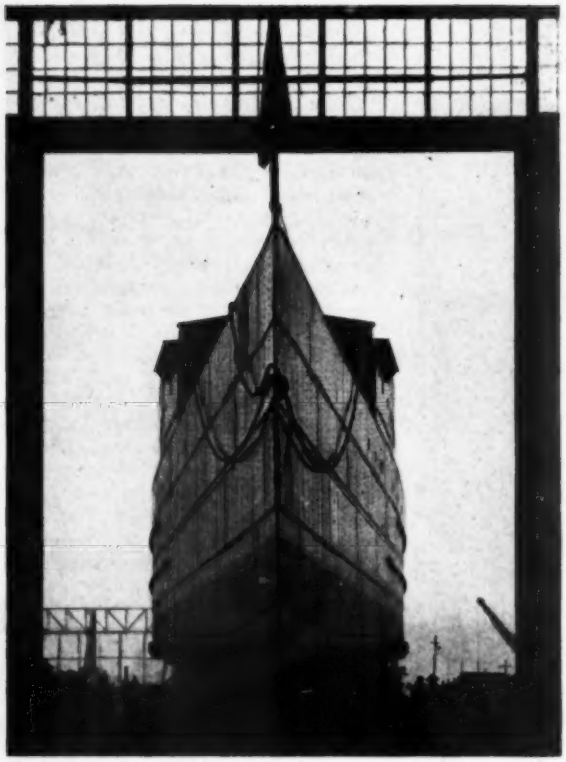
The design and construction of the boats are most interesting. However, the boats themselves are an eyesore to a yachtsman or any boatman who hates things radical and out of the ordinary. Ninety-nine out of every hundred deep sea sailors would turn away their eyes in disgust. Naval architects used to average craft are skeptical and see numerous good reasons for being filled with doubt. Remarks from seemingly knowing ones are interesting, if not astonishing. However, after all has been said, it must be remembered that the Eagles are not yachts, are not pleasure motor boats, neither are they cargo carriers—they are war boats and war is not yachting according to General Sherman.

The approximate lines of the boats shown on page twelve will give one a good idea of the under body. The boats are straight sided, flat and V-bottom, pure and simple. They have no flare or flam, a plum bow and practically no bilge. Nothing resembling the design ever appeared before. The boats were designed by the Navy Department and judging from past experiences, and keeping in mind what the boats are to be used for, the Department knew what it was about. That the boats are freaks may be nothing against them. That they lack buoyancy forward and may dive excessively is not necessarily against them.

There is hardly a curved line in the whole hull. They are made of flat steel plates, each plate almost a duplicate of its neighbor. The bilge plate is the only



Drawing showing a general view of the Ford plant where hundreds of "Eagle" warships are being built for the Navy Department



Bow view of an Eagle on the flat car on which it was built

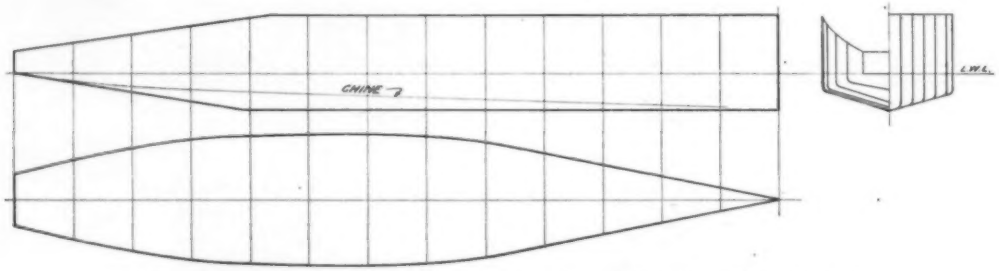
and studying night and day. When the Eagles are ready to take to the high seas, the trained crews will be ready.

Of Ford's own part in his great undertaking he has this to say:

"With all the world at war I could see only too plainly that one nation stood out most prominently in the completeness of its preparation for war, and that it was this nation that had provoked the war. Its success would in the eyes of the world justify militarism. To defeat militarism forever we must crushingly defeat Germany. The proposition is coldly logical. It works out as smoothly and as certainly as the working of a good motor.

"This is our job as a nation. When we have completed it we will find plenty of other issues to occupy our best endeavors. But while the menace of militarism exists, our minds and our labors should be concentrated on that alone. I am glad to be in a position to aid in this endeavor with my factories and facilities for pushing war work. I am proud to co-operate with the Administration at Washington and to devote all my energies and means to the winning of this war.

"And I think that we should exert ourselves for more than the mere winning of the war. We should build up now so mighty an armed force that when the war shall be over, and the peace conference meets, our influence will be paramount. That influence we will, I am sure, exert to see that every nation gets justice—the beaten as well as the victorious, the neutrals as well as the belligerents. And when that is once done the United States will set the example of disbanding her great armies, sending the soldiers back to the farms and workshops, setting the vessels of the navy to works of peace and reforging the cannon into plows and tractors."



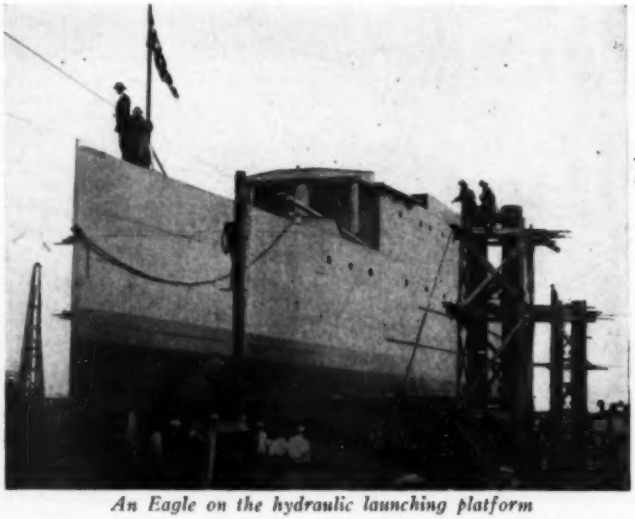
Approximate lines of the boats. Note the straight sides, flat bottom, plumb bow, etc.

curved one entering into the construction. The sheer is practically zero and deck plans look sick to a yachtsman, but it is as it is for a purpose.

In length the hulls measure slightly more than 200 feet, the reports have it, 204 to be exact. Upward of twenty transverse steel bulkheads give the hull great stiffness and provide an ample factor of safety from outside injury. The power plants are to be steam turbines of upwards of 1,500 h.p. and the boilers will be oil burners.

The bows of the boats are as fine as the sharpest knife. They are reinforced and reinforced for many feet aft evidently to give strength for ramming submarines. The hull throughout is really a reinforced steel frame and shell. No wood of any kind enters into the construction of the Eagles.

The manning of the Eagles has not been overlooked. Right on the grounds where the boats are being built there are 2,000 sailor boys in camp brought from the Great Lakes Training Station. They are undergoing intensive training



An Eagle on the hydraulic launching platform

Making them work nights. Mills of the Great Southern Lumber Co., at Bogalusa, La., are running day and night to supply yellow pine for southern shipbuilders. Millions of feet of it have gone in to auxiliaries

The Auxiliary Merchant Fleet

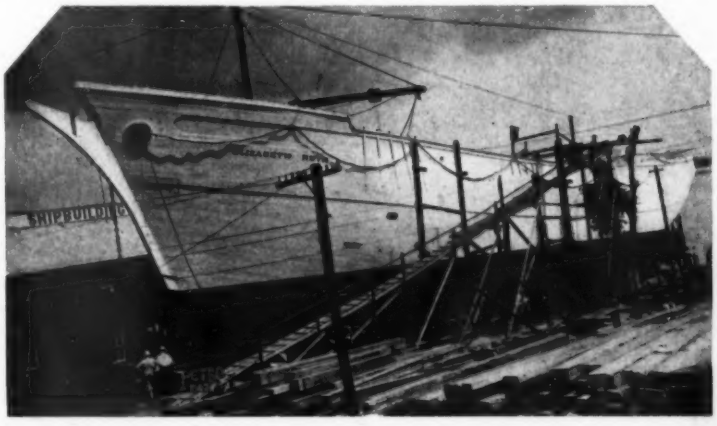
How Oil and Gasoline are Helping the Four Winds to Put Uncle Sam's New Broom Over the Seven Seas

By Harry H. Dunn

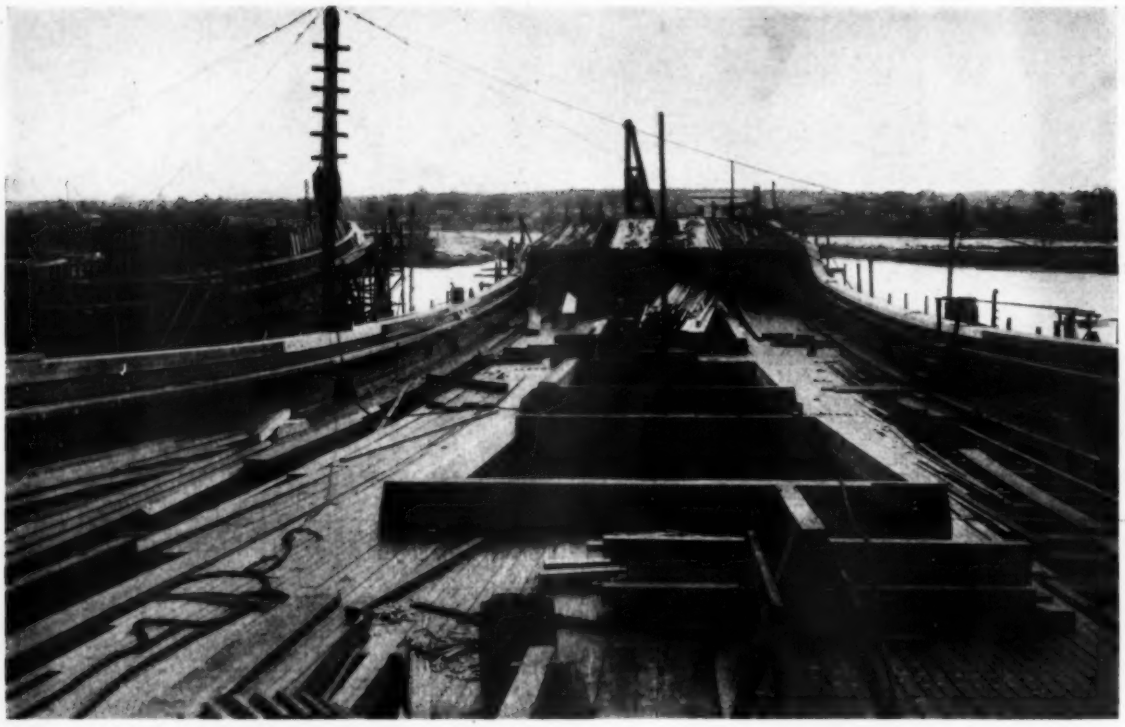
ONE of the unusual by-products of the war we are winning in Europe, one of the unexpected outgrowths of the demand for merchant bottoms—a sort of fleet within a fleet, as it were,—is being produced by the shipyards of the South in the form of the largest auxiliary sailing vessels ever built in the world. The traveler on the freight or passenger steamer on the Gulf of Mexico or on the central Atlantic Ocean to-day looks twice when he sees, stepping past the best speed of his steam cargo-carrier, a full-rigged barkentine of 2,000 to nearly 4,000 tons, with no sign of effort save the bone in her teeth, and no indication of power save a wake which only an experienced eye can affirm is made from the beating of a screw beneath the green sea.

Yet in the American merchant marine of to-day, that vast fleet planned, it seems, only yesterday, but today carrying the Stars and Stripes into every port from Murmansk to Marseilles and from Archangel to Arenas, there are nearly 100 of these freighters to drive which man has brought together the four winds and the latest form of internal combustion engine in a combination which, their proponents say, will one day drive the steamer from the sea, just as the freight-carrying motor boat has driven the old time packet almost entirely from the Mississippi River and its tributaries.

It is difficult to ascertain the real number of these auxiliaries; it is still more difficult to learn anything of their construction, their power plants, their cargoes or



"Elizabeth Ruth," 1,500-ton auxiliary, schooner built by the Mississippi Ship-building Corp. of Biloxi, Miss., for Gulf trade

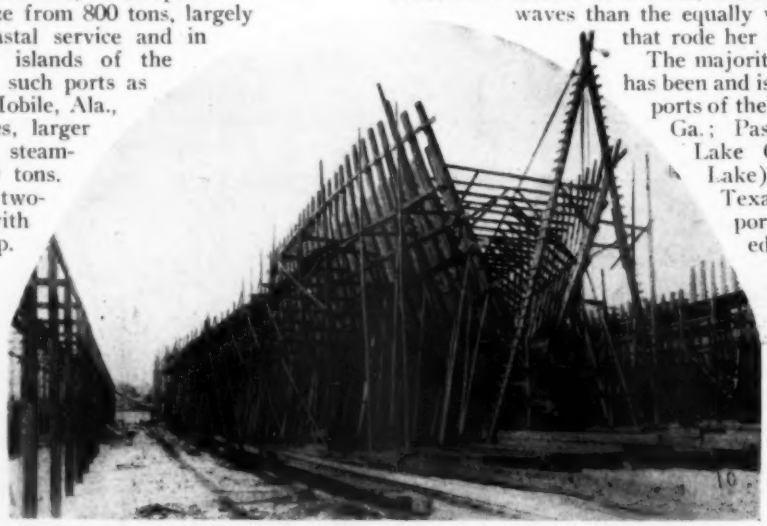


Deck construction of the City of Gulfport, looking aft, as she lay prior to launching in the yards of the International Ship-building Co., at Orange, Texas

their destination. They are built for private contracts. The Emergency Fleet Corporation has little supervision over them, and both their builders and their owners are not telling the world anything about them, unless the seeker after information is a verbal dentist, well-trained in extraction. As nearly as can be estimated after nearly two months of correspondence with private ship building corporations all over the United States, however, I find that ninety-seven of these auxiliaries have been built since the European war started, between sixty-five and seventy of them in states south of Newport News, the remainder scattered from Maine to Washington,—from Portland to Portland, so to speak.

They range in size from 800 tons, largely used in Pacific coastal service and in work between the islands of the Caribbean Sea and such ports as Tampa, Fla., and Mobile, Ala., to great barkentines, larger than a Ferris-type steamship, and of 3,600 tons. From the little two-sticker, hustling with aid of a 10 to 18 h.p. Frisbie, Gray or Wolverine, out of Cienfuegos or Port au Prince or La Ceiba, fruit laden and bound for New Orleans or Pensacola or Tampa or Mobile, beating the hurricane by sheer force of gasoline, to the 2,500 and 3,600 ton barkentines, each with a pair of 250 h.p. Diesels or semi-Diesels pounding away far aft and making Liverpool or the Mediterranean ports, laden with lumber and foodstuffs and iron and steel, these boats are making new trade routes North and South and East and West.

Their time is as good or better than that of the average freighter. Their average is ten miles an hour, with a recorded maximum of sixteen, and an accepted minimum by owners in taking them from the builders, of nine. The sixteen miles has been made in only two instances of which I have been able to obtain bona fide records, each time by auxiliary barkentines, of five masts, beautiful creatures of the sea, not less at home on the waves than the equally white winged gulls that rode her rigging.



Putting up the frame of one of the big auxiliaries in the International yard at Orange, Texas

The majority of this new fleet has been and is being built at four ports of the South, Brunswick, Ga.; Pascagoula, Miss.; Lake Charles (West Lake), La.; and Orange, Texas. In each of these ports home-constructed auxiliaries have been setting sail and power for sea, for unnamed ports, for more than three years; in each of them today, other auxiliaries, in the main larger than those at first designed, are being built and launched, while in one of

them, thirty-six of the "oiled windjammers," as an old sailor I know calls them, are being slipped quietly off the ways—one every few weeks—with others taking their places as fast as their keels feel the waters of the Gulf.

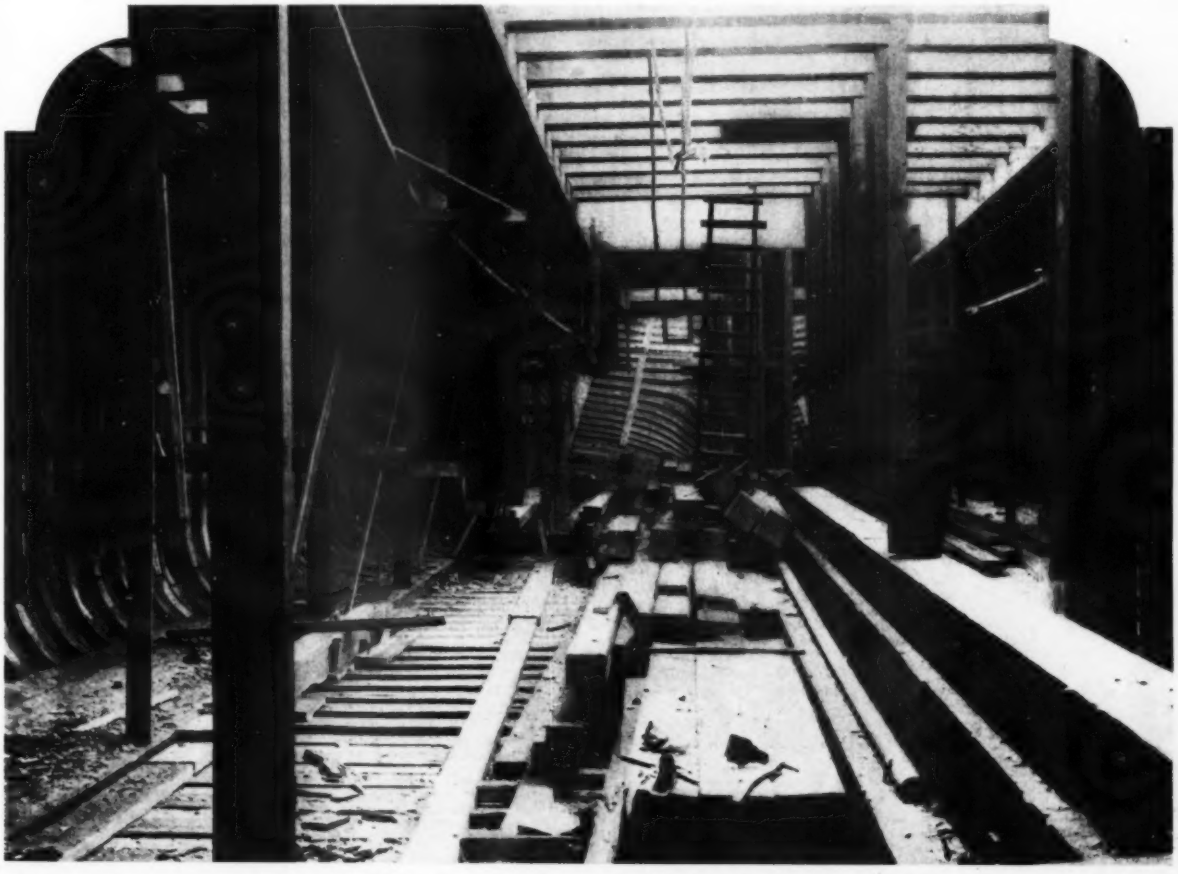
Approximately 15,000 men are employed in the construction of these auxiliaries alone, and the product of their labor supports at a low estimate, another 60,000 Americans. Not a slight industry this, nor one which is going to cease when the Kaiser shouts "kamerad" from Potsdam. Daily, these powered schooners and brigs and barkentines are proving their ability, their speed, their cargo-carrying capacity and their cheapness of operation, and when the war is over, they will be just as much, if not more, a market for marine gasoline and oil engines and an opportunity for young experts on the internal combustion engine as they are today.

City of Gulfport, auxiliary barkentine, built by the International Ship-building Co., at Orange, Texas, as she appeared just before her maiden voyage, on which she made 10 knots an hour

The reason that so many of these auxiliaries have been built in the South is that southern yellow pine has been found to be the ideal wood for their construction. Those built in the South, the larger part of the fleet, are constructed of this wood from keelsons to mizzen trucks and from their raking bowsprits to their overhanging transom sterns, finishings, trimmings, and all from the forecastle head to the captain's cabin. The greater part of this wood comes from Louisiana, and about 1,000,000 feet of it goes into the 2,500 ton auxiliary and 1,600,000 feet into the 3,600 ton barkentine, more, in the latter case, than is required to build a Ferris-type, 3,500 ton wooden steamer. But the pine is there in abundance, largely in the forests of Louisiana, whence it is being delivered, in plentiful supply by members of the Southern Pine Association to the yards at work on these private contracts as well as to those doing government work.

One of the advantages and facilities of construction of these auxiliaries at this time is that each, no matter what its size, can be constructed

To be continued

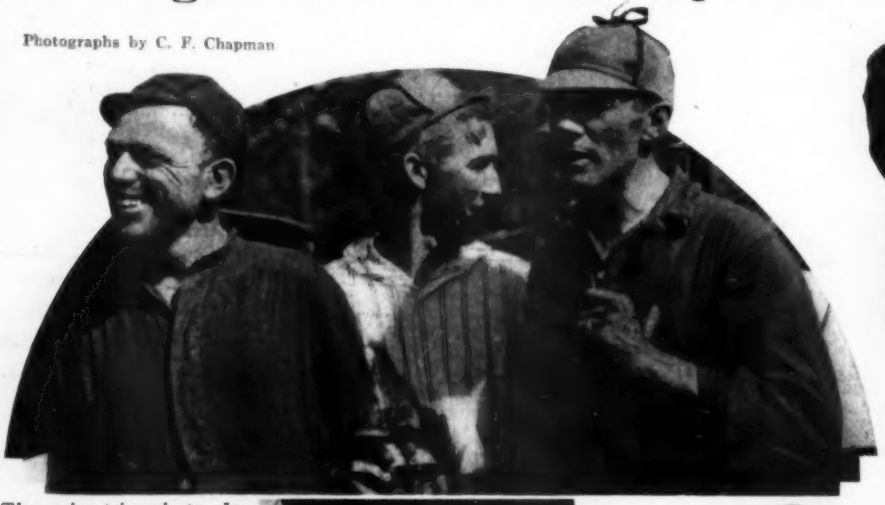


Rib and deck construction of one of the 3,600-ton auxiliary barkentines, looking aft. Note the long hatchways, obtained by setting the power plant far back and by the elimination of boilers

Betty M, Commodore Kotcher's express cruiser powered with two six-cylinder Van Blerck motors which won the first handicap race by one-fifth of a second. This boat is a 48-footer with a beam of 9 feet and a speed of 23 m.p.h.

Side Lights on the Gold Cup Races

Photographs by C. F. Chapman

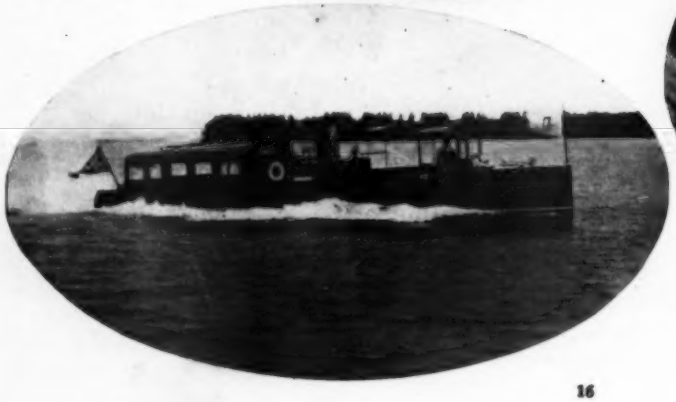


The racing triumvirate—Jay Smith, Gar Wood, and Win Wood, who have triumphed in races both east and west for the last seven years

A stern view of Gar Wood's hydroplane express cruiser. Note the steel plate to prevent cavitation of the propeller. Wood Hydraulic II is powered with a Murray and Tragurtha motor

Rosie, the camera man, who follows the races with as keen interest as though he was playing the odd

Smiling Gar Wood—smiles when he wins and smiles when he loses, although that is seldom necessary



Vivo, a 60-foot express cruiser powered with two six-cylinder Model F Sterling motors

SMALL MOTOR BOATS

Their Care, Construction, and Equipment

A Monthly Prize Contest Conducted by Motor Boatmen

Questions for the January Issue

1. What is likely to be the future of our yacht clubs after the war and can any steps be taken by the older members to insure a renewal of club activity when victory has been won?
(Suggested by A. O. G., Portland, Me.)

2. How may an engine crankshaft be tested for alignment and what simple straightening tools and methods have you devised to put it into serviceable condition?
(Suggested by G. A. L., Washington, D. C.)

THE object of the Prize Contest Department is to put before our readers the best and most valuable practical and first hand information from motor boatmen on all subjects pertaining to motor boats, their care, operation, and equipment. This department is conducted by the readers themselves. They suggest the questions in which they are most interested and, in turn, read the best answers to the questions of others. Any motor boatman is at liberty to contribute replies to the questions published each month or suggest questions for subsequent issues.

Smoothing Up the Hull Before Painting

Answer to the First Question in the August Issue

"What have you found to be the best method of smoothing up the hull of a boat when the plugs project beyond the surface of the planking and the putty has been forced from the seams by the swelling of the wood?"

A Hand-Power Sandpaper Wheel

(The Prize-winning Answer)

THE device illustrated in Fig. 1 will be found useful in many ways around a boat undergoing repairs, as it may be used in a number of ways aside from removing protruding putty and plugs. It is first necessary to procure a hand power emery wheel, which may be purchased in almost any hardware store for about $5. It is essential to select one with a protruding spindle, for to this is attached the flexible shaft.

This construction permits of readily removing the shaft in which case the emery wheel can be used for grinding tools and the like.

An automobile speedometer shaft will answer very well. To the other end of the flexible shaft is attached the sandpaper wheel as shown in Fig. 2. The wheel should be about four inches in diameter by two inches wide.

The sand wheel spindle projects beyond the wheel to provide for a wood handle which is retained by a screw as shown. This device is very similar to what is being regularly used by boat builders and provides a very efficient and rapid means for not only removing putty and protrusions of any kind, but also for smoothing wood work in general, previous to painting and varnishing.

Various grades of sandpaper may be used on the wheel, the very coarsest being most suitable for the work in question. While the cost of this outfit is very moderate and well worth while, to the average boatman, in many cases the device could be a club purchase.

In operation the emery wheel stand is clamped to any suitable support and the handle turned by one person while another does the sandpapering.

J. F. C., Meriden, Conn.

A Chisel and Plane Do the Trick

AFTER the first season with a new boat, I have found that some of the plugs will project as much as a sixteenth of an inch or more, and my method is to use a sharp chisel and plane. Starting with the chisel, cut off a thin slice from the projecting plug to find which way the grain runs, and then shave it off against the grain, to prevent splitting down below the surface of the planking. Smooth it up with the plane set fine.

Where the putty has squeezed out, scrape it slowly with a steel cabinet scraper, until smooth. If you take too much off at a time, it may pull some out below the surface.

When the above operations are done, give the bare spots a thin priming coat of paint, and fill up any cracks with white lead putty. When hard and dry, sandpaper the entire hull with a No. 1 sandpaper, and give it a coat of paint. This will leave the hull in good condition for giving the final coat in the spring.

After the first season, the hull will not require much of the above attention for four or five years.

If you find it necessary to replace a plug, dip it in glue and drive it in tight, but not all the way. Leave a space at the bottom between the plug and the screw head, for expansion and vibration will loosen it if driven to touch the bottom. Chisel off as described above.

L. R. K., Philadelphia, Pa.

A Sharp Plane Very Effective

ON beginning the last spring fitting out, the writer found many of the plugs in the boat projecting beyond the surface and the putty partly forced from the seams. Those plugs that were loose were replaced but many were perfectly tight. A small block plane was used to smooth off those on the convex sur-

Rules for the Prize Contest

ANSWERS to the above questions for the January issue addressed to the Editor of MoToR BoatinG, 119 West 40th St., New York, must be (a) in our hands on or before November 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' name and addresses.

The name will be withheld and initials used.

QUESTIONS for the next contest must reach us on or before the twenty-fifth day of November. The Editor reserves the right to make such changes and corrections in the accepted answers as he may deem necessary.

The prizes are: For each of the best answers to the questions below, any article or articles sold by an advertiser advertising in the current issue of MoToR BoatinG of which the advertised price does not exceed $25, or a credit of $25 on any article which sells for more than that amount. There are two prizes—one for each question—and a contestant need send in an answer to but one if he does not care to answer both.

For answers which we print that do not win a prize we pay space rates.

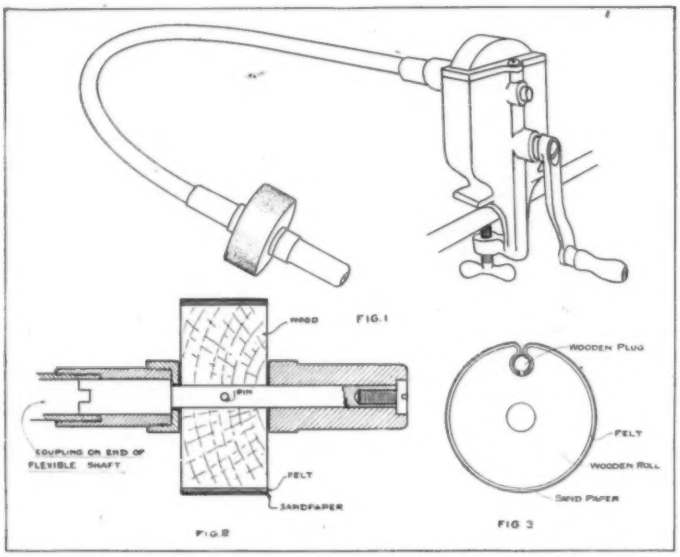
For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of MoToR BoatinG, of which the advertised price does not exceed $5, or a credit of $5 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us.

faces of the boat and a sharp chisel on those in the flare. In both cases the cutting being done about forty-five degrees to the grain of the plug. This being because the plane hogged in going directly with the grain and started the plug.

The putty was very hard and consequently a different matter. The plane dulled easily on it so a piece of coarse sandpaper was used, crosswise of the seams. After it had been cut down fairly well, a piece of fine sandpaper on a block was used to finish the job and the rubbing done lengthwise of the seams. There was then a small crack on one side of the putty where the putty had adhered to one plank as the other pulled away when the hull dried up. No putty was put into this but when the hull was painted, care was taken to work the paint into the crack. When the boat went over and the hull swelled, the paint in the crack was just enough to insure a tight union, and the result was a dry boat with a smooth hull.

E. R. A., Bath, Me.



J. F. C.—A hand-power sandpaper wheel that is easily made from an emery wheel machine and some old flexible shafting

A Sandpaper Block Saves Labor

WHEN the surface of the hull of a boat is being prepared for painting, and the plugs project and the putty stands out in ridges, the best aid to the painter is plenty of coarse sandpaper, either tacked to or held flat on a piece of wood. The use of sandpaper extends back beyond memories, and to the best of my knowledge a better substitute has not been found.

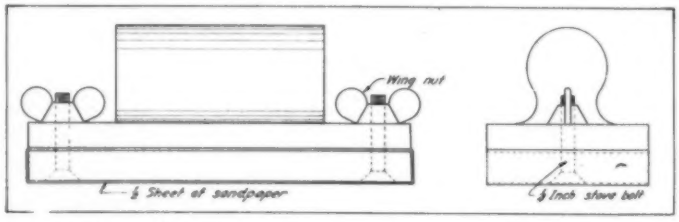
A substantial block, as a backing for the sandpaper and as a hand grip, affords the painter the means of covering a large area with the least muscular effort and get the use of the full surface of the sandpaper.

Such a block, for holding the paper and for quickly renewing it, when the sand gets worn off is shown in the accompanying sketch.

The idea was borrowed from a pattern and hull carpenter who uses several of these blocks of various sizes.

The larger size is one-half the width of a piece of standard size paper and is about two inches less in length. The stove bolts, provided with thumb nuts, afford means of clamping the paper firmly between the two blocks which make up the holder. The upper block is rounded and smoothed up to fit the palm of the hand. The sketch shows the general shape and assembly without description. It is needless to state that one of these blocks will last a very long time as there is practically nothing about it to wear out.

G. A. L.,
Washington, D. C.



G. A. L.—A block to hold the sandpaper is a great time saver

The Outboard Motor Almost a Necessity

Answer to the Second Question in the August Issue

"Is the outboard motor a valuable adjunct to the tender of a medium-sized cruiser, and give your reason for your opinion?"

Makes Many a Chore a Pleasure

(The Prize-winning Answer)

IN considering the question whether the outboard motor aboard a cruiser of moderate size is "worth its keep" in transforming the humble dink into a near motor boat, suppose we discuss in turn both sides of the question. There are undisputed advantages in having an outboard ready at hand and these may be arrayed about as follows:

The tender with the outboard motor makes a very respectable towboat which is capable of moving its parent ship at modest speed from one point to another whenever it is impossible or undesirable to start the cruiser's own motor. That these occasions do occur all cruising men will agree. How much more agreeable, then, to start up your own little coffee mill and without obligation or expense or avoidable loss of time to slowly but surely tow the big boat into the gasoline float or out to the mooring or, perchance, away from that jagged black reef with the white foam roaring through its ugly, saw-like teeth.

Towing a cruiser of even very moderate proportions with the oars is next to impossible even in good weather. White ash breezes were never meant for cruising motor boats with their dragging propellers and upstanding freeboard.

Remember that charming peaceful anchorage just two miles from the village where, alone, supplies may be had but whose busy harbor is disturbed night and day by the wash of steam and motor craft, making it an

interesting but not a restful haven in which to drop anchor for a night or two. Who volunteers to row over to the village for fifty pounds of ice? But who would not make the trip with the trusty outboard eating up the distance and transforming a chore into a pleasure excursion.

And are there not occasions when a sail in the outboard-equipped dinghy at a very modest outlay would be as truly satisfying as a similar trip in the big boat whose engine eats up gasoline as a small boy absorbs ice cream soda?

The other side of the question may be stated something like the following:

The first cost of a detachable motor will prove a substantial addition to the already formidable expense of equipping a cruiser.

The bulk of the motor may become an unwelcome addition to the outfit already occupying what appears to be every available inch of stowage space.

Perhaps the tender will need to be larger if an outboard motor is to be used with it. As a matter of fact most tenders are a trifle small anyhow so this may not be a disadvantage after all.

Many tenders tow poorly with the outboard over the stern so, if this is the case, the effort of attaching and removing the motor must be frequently made. The old question of reliability has long ago been solved by the manufacturers to the satisfaction of everybody.

So, to sum it all up, if you can spare the money and have the room and if your tender is suitable, by all means go buy an outboard motor and add other joys and responsibilities to the already familiar pleasures and cares of owning a motor cruiser.

A. O. G., Portland, Me.

As Good as a Paid Hand

THE outdoor motor is a valuable asset to a tender of a medium-sized cruiser or even a small cruiser for several reasons. There are a number of good, reliable manufacturers, and they can be classed as a shipmate, and as good as a paid hand in the crew. Take for instance where the cruiser is at anchorage, the good little outboard attached to the dinghy is always ready for the job, almost no matter what the variety is. Running back and forward to the club float with provisions and supplies you can sit in the stern, see where you are going, steer, and control your little craft to excellent advantage. This type has a decided advantage over its little brother the inboard motor in this way. In a small tender say from 12 to 15 feet you need all the space available either for passengers or supplies. The outboard takes up none of this space, is out of the way and can be detached in a jiffy, if not needed, and if you haul the tender aboard the cruiser it makes it lighter to handle.

After you are all ready for a cruise some little thing is forgotten which means an extra trip back to the float, or perhaps one of the guests arrives on the scene after you have started. Well, here's where little Johnny on the Spot comes in handy. It saves lots of time and tiresome rowing back and forth, especially where the tide is running strong and a stiff breeze is blowing. It's a time saver also. When there are several more big boats at a float or wharf where you have to wait your turn to land your guests, you can make your cruiser fast at her mooring and let one of the party land the rest of the guests in the tender without any loss of time. It is handy for a little fishing trip in the morning before the guests get up, or to run in on some bar or flats to dig a bucket of clams for chowder or bait. While cruising in rivers it is fine for exploring shallow coves and inlets and in finding a channel for the cruiser. As an auxiliary it is valuable if anything breaks in the power plant of the cruiser that cannot be repaired quickly. Especially if the boat is rolling in a seaway, you can make fast to the tender and tow your boat easily to the lee somewhere where repairs can be made under more favorable conditions.

There is a tender built especially for these little outboard servants called the dory skiff, for which I think the outboard motor is best adapted, but they can be used successfully on most any style of boat.

In summing up I would say that the outboard motor is about as good a pal as one could have and could even be classed as a life saver sometimes. And they are easy to operate, economical on fuel, simple of construction, and they are not very expensive. My advice to the owner of a cruiser is to get one and try it, and it is almost safe to say he will never be sorry. In fact, some manufacturers will refund your money after thirty days' trial if not satisfactory, so one can't go wrong.

E. W. N., East Boston, Mass.

Will Help Make a Cruise Enjoyable

IF your cruiser has ever run out of gasoline, four miles from the nearest supply station, night coming on, no provisions aboard, and a crew mostly of the fairer sex you must have wished for an outboard motor for the tender. An eight-mile jaunt in a rowboat is no cinch. Even when there is not enough gasoline in the tank to run the engine you will undoubtedly be able to pump out a quart which will send an outboard motor a good way.

A breakdown far from a repair shop should not cause great worry if one has an outboard motor. Just let the tender take the towline and the motor will do the work of several men at the oars.

Besides being a help in time of trouble, a portable motor will play an important part in making a cruise enjoyable. Such things as going ashore for water and supplies, along shore close to the rocks, for fishing up creeks, crabbing and putting into some sheltered creek or nook for a dip and sun bath can be done much easier than by rowing, especially if the sun is hot.

Of course there is the cost of upkeep and care of one of these small motors to be considered but the fuel one burns is nothing compared with the average cruiser engine, and with ordinary care few repairs if carried aboard. As is common practice the motor may be left attached to it or removed and placed inside and when the tender is towed the motor is easily stowed aboard the cruiser.

So it is my personal opinion that the outboard motor is valuable for the cruiser when everything is running smoothly or in time of trouble.

E. R. A., Bath, Me.

More Trouble Than Help

THE use of a motor-driven tender depends much upon the size of the cruiser. So much so that space and davits should be provided to swing in the tender when not in use, otherwise oars are better and the more sensible means of propulsion for landing craft.

An outboard motor must be housed when not in service or considerable difficulty is certain to be experienced when the engine is to be started after towing along the motor equipped tender in the wake of the cruiser all day. A water soaked ignition circuit and a spray filled carbureter necessitate the tedious and laborious task of cranking, wiping dry and priming to get the engine started, while to remove and replace the outboard motor on a small rowboat, especially in a choppy sea, is a de-

spised task, as any one well knows, who has endeavored to do it.

To lift a seventy-five- or ninety-pound motor down into a boat from the deck or landing stairs of a cruiser, swing it over the stern and clamp it into place is a far harder task than pushing the oars a few hundred feet.

The outboard motor is a mighty handy little device for the conversion of an oar-driven canoe or rowboat into a power drive, for one who has not the money or time to invest in the care and upkeep of a small cruiser and will afford almost unlimited pleasures in running up and down small rivers and through shallow water, and the owner is afforded the secure foundation of a shore or boathouse landing to remove and replace his motor after using it.

The outboard motor requires to a modified degree the same care and protection that the large motor so carefully protected on the interior of a cruiser is given if it is to be serviceable.

If you must have a motor driven tender, install a small single-cylinder one inboard, and protect it with as nearly a water- and weather-proof covering as you can arrange, and it will be less troublesome than one which is hung over the stern and exposed to water and weather.

G. A. L., Washington, D. C.

Saves Weight When Handling the Dinghy

THERE is no doubt that the outboard motor is a valuable adjunct to the tender of a medium-sized cruiser and the considerations which determine this are those of convenience and utility.

That a motor of some sort is desirable in a tender goes without saying. Anyone who has watched these little craft darting to and fro at a club anchorage, who has had to row a heavily laden tender (or even a light one for that matter) in a broiling sun, or against a strong wind and heavy sea, or who has towed a cruiser even if only for a short distance, will appreciate that fact.

If, therefore, we regard a motor as desirable, it remains only to show wherein the outboard motor is of special value in the tender of a medium-sized cruiser. In the first place many cruisers of this description are not equipped with davits and anyone who has attempted to lift up a tender and put it up on deck or upon the cabin will realize that it is no small task, for a tender is an awkward thing to handle, even if of light construction, and every additional pound increases the difficulty. In such a case an outboard motor presents a decided advantage, for it is compact and can readily be detached and passed aboard.

When towing the tender, another mode of procedure frequently practised by the owners of medium-sized cruisers, the outboard motor again leads.

There is no doubt that a light tender is easier on the tow rope and is less likely to be dragged under than a heavy and sluggish one, and the drag of its propeller is no small item. Furthermore, it is difficult to protect the motor of an open boat and its equipment from spray, moisture, and the weather. All these objections are overcome by the outboard motor which can readily be stored under shelter on the cruiser, this retarding its deterioration and insuring more reliable and satisfactory operation.

On medium-sized cruisers, particularly the smaller ones, there is frequently no provision for carrying a tender on davits, even if these are provided, and indeed a small cruiser with a tender swung on davits looks funny, or on chocks, so that it is generally inverted on the cabin roof. The advantage of the outboard motor in this case is obvious.

Another point should not be overlooked. Opportunities for exercise are somewhat limited during a cruise so that one is often glad to do a bit of rowing, particularly if there be any quiet bays or streams to explore. Now one does not like to tote around the dead weight of a motor and drag its propeller, besides the space could in all probability be used for something else, so that, unless one has a craft large enough for two tenders, one a motor, the outboard motor is to be favored.

Finally, if the engine of the cruiser goes dead one can put the outboard motor over the counter and make shift to get into the nearest port. It is, of course, a moot point whether the cruiser can be driven or towed more easily but in most cases it would seem to me that the former would be best.

On the whole under the circumstances outlined, the outboard motor has undesirable advantages and should be provided for the tender of a medium-sized cruiser.

A. B. C., Scarsdale, N. Y.

What a Naval Training Station Really Is

(*Continued from page* 9)

these schools owing to the excellence and efficiency of the instruction force, a man will receive a thorough training which coupled with initiative on his part will enable him to hold down his rating at sea with credit.

Besides the Officers' Training School at Pelham, which trains men for commissions as officers of the line, there is also the Naval Auxiliary School, which trains men for officers on board the great and growing fleet of merchant marine ships.

All the way through it is up to the man himself. Unlimited opportunity in almost every branch of naval service is open to the ambitious recruit, and the camp has already achieved a wide reputation for the personnel of its recruits. Men with high school and college education make up a large proportion of recruits sent to camp, and those men who have not had the advantage of a higher education are almost entirely all of the intelligent, ambitious type to whom the lack of technical training proves but a slight handicap which is quickly overcome by hard study and intensive training.

It can well be said that the "bars are down" here. The officers and instructors know that before long a large proportion of the men under them will also wear the insignia of authority. For this reason there is not that great gulf between men and officers that was the rule in the old Navy, yet there is no relaxation of that discipline which is so essential to the successful operation of a naval vessel.

When the Army helps the Navy. In many cases the bridges over canals of northern France are not high enough to allow the passage of motor boats without the Army Engineer Corps' assistance

Photographs by Gilliams

Motor Boats Are Forcing Germany to Her Knees

IT is not only on the high seas that the motor boat is playing its important part in combating the horrors of the Hun. Naturally the submarine chaser is the most popular with the public as it combines the romance of the sea with hunting the most modern and brutal pirates the world has ever known.

There is another class of motor boats, not very speedy to be sure, that are nevertheless doing their part, and faithfully, to keep the Hun on the move northward. These boats, some not much bigger than a fisherman's skiff and others full-fledged canal boats, are hard at work day and night transporting troops and supplies up and down the network of canals and rivers of northern France and Belgium.

In the early days of the war these same boats carried refugees out of the danger zone, acted as supply stations and were invaluable to the Red Cross in caring for the wounded. Now they are used mostly for moving troops and supplies in the back areas, and are proving a valuable aid in relieving the congestion of traffic on the roads and railways.

One of the most serious transportation difficulties in France today is maintaining the highways under the heavy motor truck traffic, and here is where the motor boat has the big advantage. The canals require very little maintenance work and are practically never closed for repairs while the roads are rapidly worn away by the heavy automobile truck traffic.

The remarkable record made in transporting troops across the Atlantic is known to everybody, but little has been said regarding the transportation of men along the numerous canals and rivers of France and Belgium

Ship Builders in the Making

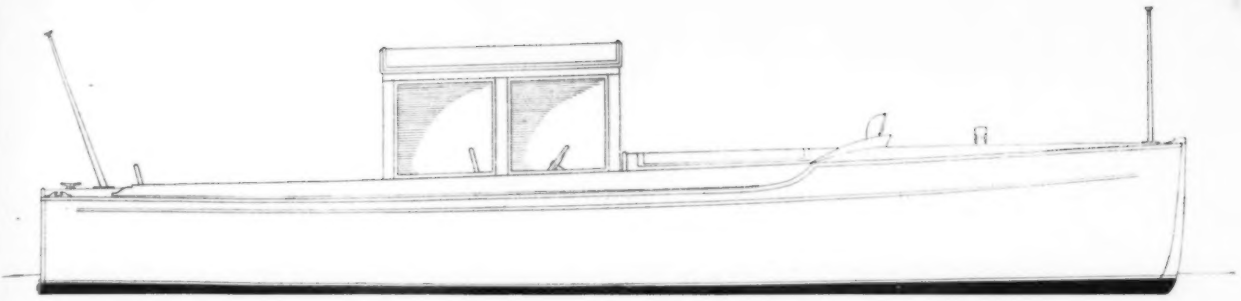
To meet the demands of the ship building program it was necessary to train men for this special work. At the right is shown a student learning to use a pneumatic riveting hammer on the bottom frames of a ship at the yard of the Newburgh Ship Building Co., Newburgh, N. Y.

The illustration below shows two graduates from the Newburgh night school of ship building reaming out rivet holes in the steel deck plates with an air tool under the supervision of an instructor. By this system it is possible to produce skilled workers in six or seven weeks' time

© Photographs by Publishers Photo Service

The building of steel ships requires the services of carpenters as well as iron workers and in the mold loft the carpenter is supreme. It is here that the molds and templates are made by means of which the steel parts are accurately shaped and punched

After learning the elements of driving rivets the student is taught to form the various types of heads with the pneumatic riveting hammer. Some rivets have the ordinary rounded heads while others must be flattened or even countersunk. This work is directed by an expert instructor



My Ideal Runabout

No. 9—Curlew, a 22-Footer for Open Water

By H. B. Selden

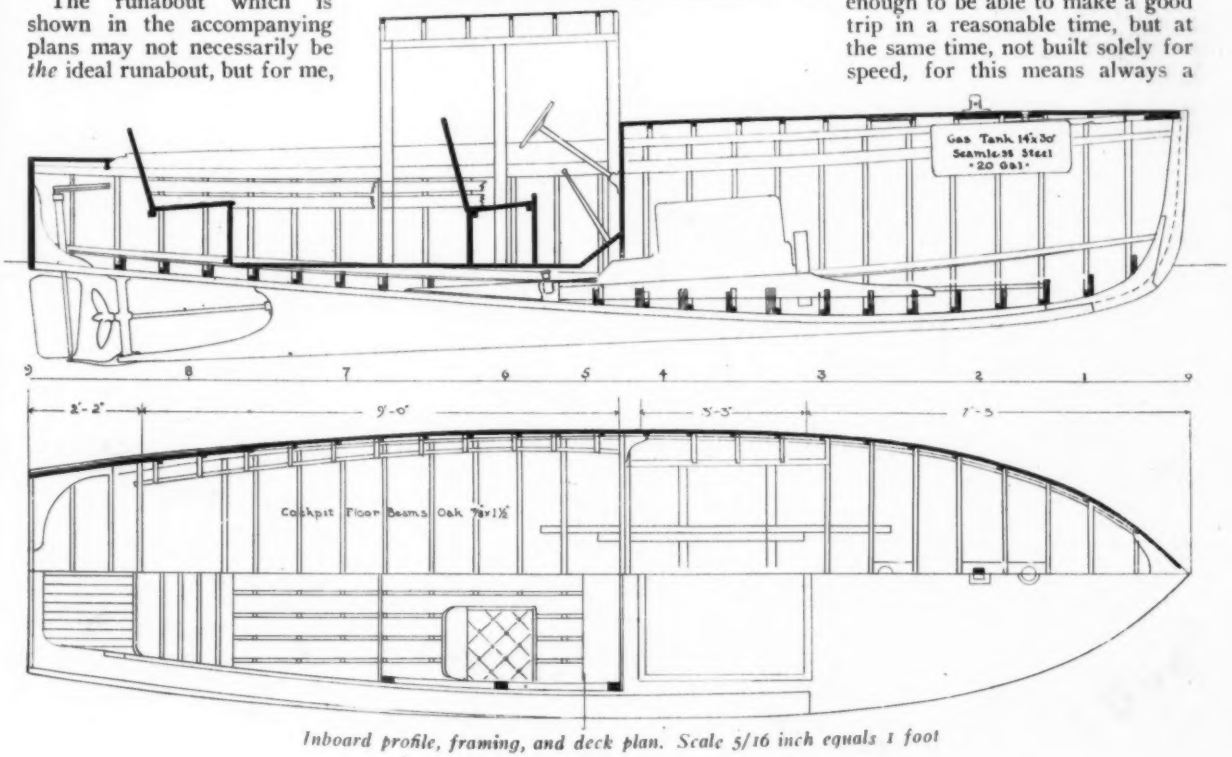
WHAT a useful and satisfactory type of boat the modern runabout has come to be and this year especially it is a type that will prove more popular than ever, owing to the difficulties of long cruises that are a necessary result of the great War. Those of us who must stay at home should keep up the interest in the development of motor boats, for aside from any other consideration, the motor boat has proved its worth in the present war. Every morning I see a long line of patrol boats going out, manned by men, many of whom owe their experience to their own boats, which they have given to the Government.

The runabout which is shown in the accompanying plans may not necessarily be *the* ideal runabout, but for me, for the waters on which it was designed to be used and the purposes for which it was intended it should prove entirely satisfactory. It will be used for going about in a certain harbor which is located "somewhere" at the eastern end of Long Island Sound, and for trips up the river which here reaches the sea, and for short runs in the Sound. Many of the modern high-speed runabouts, fine as they are, do not at all fill the bill for me. I wanted a small boat but a real boat, capable of reasonable trips in any weather and strong and staunch enough to last many years; small enough not to be a great burden when it comes to hauling out and painting, fast enough to be able to make a good trip in a reasonable time, but at the same time, not built solely for speed, for this means always a

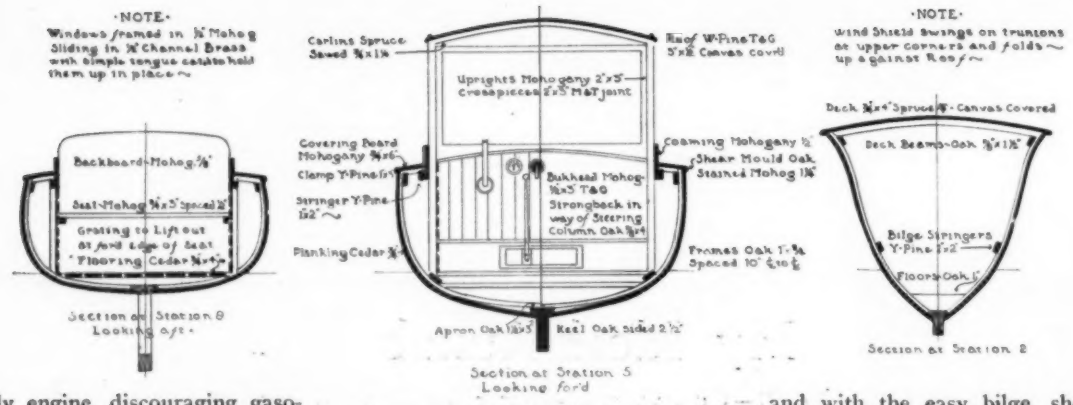
My Ideal Runabout

Curlew, the ninth of the series of Ideal Runabouts, is a 22-footer that was designed for what might be termed ferry service on a harbor at the eastern end of Long Island Sound, and for trips out on the open waters of the Sound. When making trips to and from town it is not always convenient to wait for fair weather, so Curlew is provided with a permanent enclosure for the forward seats.

In the December issue of MoToR BoatinG *will appear the tenth and last of the series of Ideal Runabouts, those interesting little boats from the boards of amateur designers which have been sent in to us from all parts of the country. Although the series will end, there will be an announcement of interest to every reader of* MoToR BoatinG.



Inboard profile, framing, and deck plan. Scale 5/16 inch equals 1 foot



Sections at stations 2, 5, and 8 showing construction. Scale 5/16 inch equals 1 foot

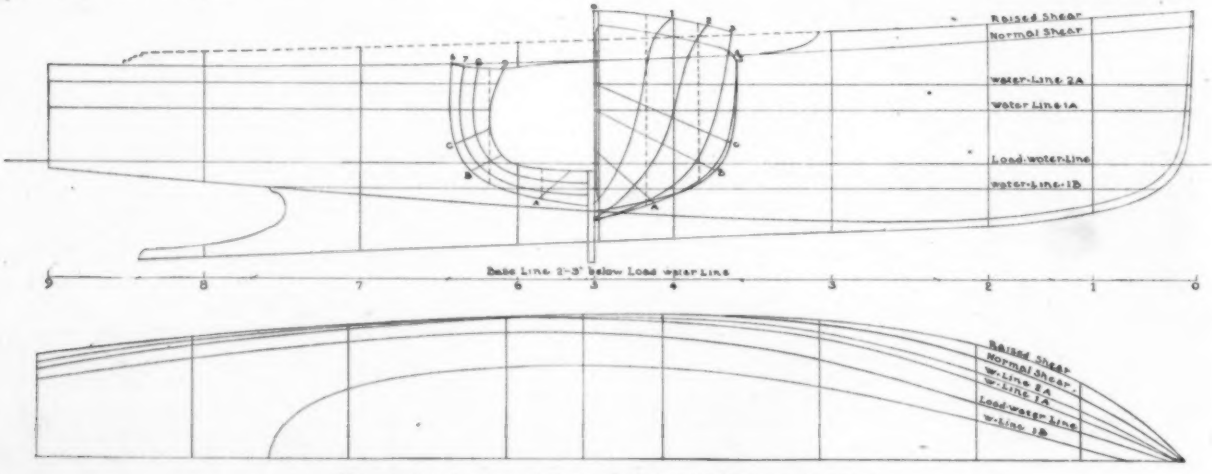
costly engine, discouraging gasoline bills and various sorts of thrills. In short, I wanted what many people would call a rather conservative boat, less speed and more seaworthiness.

As always nowadays there comes up first the question of which type of hull, whether it is to be V-type or round-bottom. The V-bottom has many admirers and many good qualities but to me the type is not beautiful—it lacks the fine, flowing lines, the boaty look of the older type; then, too,—and this is a point that is often overlooked—the V-bottom is very buoyant, but in a small boat this buoyancy gives it a quicker, shorter action in a seaway. It is not quite so easy and smooth as the older type. So that once again, as in the little cruiser Cygnet, I turned, after careful consideration, to the round-bottom type. The forward sections show considerable flare, which makes for a dry boat, and at the same time gives a handsome bow, but this flare I was careful not to carry too far aft so as to avoid a corner sticking out awkwardly where the raised deck ends. The greatest displacement comes a little forward of the center of the motor, giving support where it is needed. The gasoline tank is forward and the passengers aft, balancing the weight, and with the easy bilge, should make a very comfortable boat. Note the long, clean run, almost a straight line from way forward, to the transom, giving an unbroken flow of water to the wheel, thereby giving the little power plant, a 20 h.p. Kermath, a pretty good chance to do efficient work. The beam is rather greater, for the length, than is usual in a boat of this type, but it makes a roomy, able boat, and the loss in speed is almost negligible. As a matter of fact, 16 m.p.h. can easily be attained with a propeller of 14-inch diameter by 22-inch pitch, with a motor speed of 1,100 r.p.m. Of course, without the skeg better time could be made, but it is a great comfort to know that wheel and rudder are well protected. Personally, I am a great believer in the outward rudder, but with a runabout, coming constantly to crowded landings, as one must, it seems better to keep everything inboard. In this connection you will note that the stern flagpole socket is put forward of the cleat and even with its rake, the flagpole does not extend aft of the transom, so that there is nothing sticking out beyond the hull to tempt fate. Among the many helpful schemes which have appeared in the Prize Contest Department of MoToR (*Cont. on page* 43)

·TABLE OF OFFSETS·

Dimensions given in feet-inches and eighths to outside of Planking ~

·STATIONS·	0	1	2	3	4	5	6	7	8	9
Half Breadths · Heights · Raised Shear	5-6-1	5-0-4	4-9-7	4-9-0	4-1-7					
Normal Shear	4-10-1	4-8-4	4-7-0	4-4-7	4-3-2	4-2-3	4-1-1	4-1-1	4-0-5	4-1-1
Rabbet		1-3-7	1-0-3	1-2-5	1-2-7	1-3-7	1-5-0	1-7-6	1-10-4	2-1-4
Keel Bottom		1-3-4	1-0-4	0-10-7					0-4-6	
Section 12"out		4-0-0	2-0-1							
Section 24"out			4-7-7	2-4-2			1-10-1	2-0-7	2-3-2	3-0-0
Raised Shear		1-6-3	2-2-6	2-8-1	2-9-3	2-9-0	2-8-4	2-6-7	2-3-7	1-11-3
Normal Shear		1-2-5	1-11-5	2-1-1	2-9-2	2-9-0	2-8-4	2-6-3	2-3-1	1-9-6
W.Line 2A		0-11-6	1-8-6	2-5-4	2-7-3	2-8-5	2-8-4	2-6-3	2-3-1	1-8-7
W.Line 1A		0-9-5	1-6-3	2-4-2	2-10-5	2-8-3	2-8-6	2-6-1	2-2-1	1-8-3
Load W.Line		0-6-6	1-1-5	1-11-2	2-4-2	2-3-1	2-3-3	2-3-1	1-10-1	1-6-0
W.Line 1B		0-3-1	0-9-4	1-5-2	1-9-2	1-9-6	1-9-2	1-4-3		
Diagonal A intersects Perpendicular 2'-6" above Base Line · Base Line 2'-10" out										
Diagonal B · ·			· ·	3-3"	· ·	· ·	· ·	· ·	6-9	· ·
Diagonal C · ·			· ·	3-9	· ·	· ·	· ·	· ·	8'-9"	· ·
Load water Line 2'-3" above Base Line · · · ~										

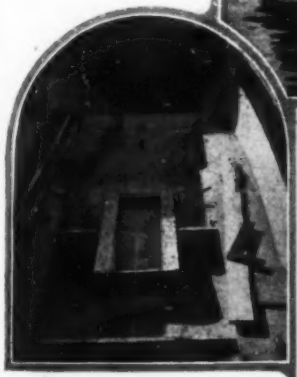


Lines and body plan of Curlew. Scale 5/16 inch equals 1 foot

A Concrete Example of a Concrete Boat

Much Has Been Said for and Against Concrete as a Boat Building Material but Few of the Statements Are Backed with Facts

This little 16-foot open concrete launch was built by a man in the woods of Michigan, was presented to the Great Lakes Naval Training Station, brought to the Motor Boat Show in New York and was then taken to Washington. Quite some cruise for a motor boat—even if it was on a motor truck



The two longitudinal stringers for the engine bed were carefully fitted to the rounding concrete bottom and securely bolted in place, holes being drilled through the concrete of the hull

After the concrete engine bed and cross-floor had been cut away the work was similar to that on a wooden hull

The original engine bed consisted of two concrete cross beds cut away to accommodate the base of the motor

The completed installation showing the four-cycle, four-cylinder motor mounted on the wooden bed and the wooden cross floor at the forward end of the longitudinal engine bed stringers

EVERYBODY who attended the Motor Boat Show in New York last winter probably remembers the concrete motor boat, conspicuous mostly by its absence until the last day. As was stated in the January issue of this magazine, this little 16-foot concrete boat was built by Walter M. Dowsey, in 1914, at a lumber camp at Iron River, Mich., for use on a small lake.

When he built this boat, Concrete by name as well as material, Mr. Dowsey probably had little idea what a career awaited it. In October, 1917, it was presented to the Government for the use of Captain W. A. Moffett, Commandant of the Great Lakes Naval Training Station on Lake Michigan. The Portland Cement Association brought Concrete from Chicago to New York on a motor truck. The trip was a most difficult one, made during the worst part of a severe winter. The snow drifts encountered near Rochester and again between Albany and New York were five and six feet deep and it was necessary to shovel a way through for the truck.

After the Motor Boat Show Concrete was exhibited at the Hotel Biltmore—until a new idea occurred to the Association. They would take it to Washington and demonstrate to the Shipping Board and other officials that a concrete boat driven by a gasoline motor was practical. A good publicity stunt for the cement interests.

Now, in its short but interesting life and travels Concrete had always been powered with a two-cylinder, two-cycle motor, on the make of which no two experts could agree. When tried out under power it was found that the motor lacked flexibility, as is the general case with two-cycle machines and it was not provided with a reverse gear. So it was decided to install a four-cylinder, four-cycle motor.

Not having had previous experience in buying marine motors, the Association appealed to MoToR BoatinG to help them out, with the result that prices were obtained at once and the order was placed the next day. Then came another appeal for help. Who would install the motor? It did not take long to find that the boat builders were afraid to tackle a concrete job, except one, the Colonial Boat Shop, run by Frank Grimes. So Concrete was put back on a motor truck and taken to the Colonial Shop.

When the original engine had been removed and the necessary measurements made it was found that the new motor, a little Ferro four-cylinder, four-cycle unit power plant, would extend further forward than the old motor, so for that reason it was necessary to remove one of the concrete floors, or cross braces.

Chipping concrete does not appeal strongly to a builder of wooden boats. Nevertheless, the proprietor of the

(*Continued on page* 50)

Clearing the Atlantic of Mines

Drawing by Garretson

In order to minimize the loss of men and ships, vessels plying between America and Europe are being equipped with a recently perfected device, called a perivane, which is reducing damage from mines to a minimum, and destroying the mines.

This device is as simple as it is effective. It consists of two torpedo-like objects that are self-propelled and run at the same speed as the ship, at a fixed distance below the surface of the water and just a little aft of the bow, to which they are connected by a steel cable. When a mine is encountered its anchor rope slides along the cable connecting the ship and the perivane. When it reaches the perivane it is automatically cut, allowing the mine to come harmlessly to the water's surface

A Day with the Gas Slackers

TWO gasless Sundays had passed. Ninety-nine per cent. of the motor boatmen had shown their patriotism by keeping their craft at anchor, hard as it was to give up their only free day for boating during the week and in a very short season at that. However, the one per cent. couldn't see why they should be barred from a day's outing on their boats with their families and friends in the free and open fresh air. Their tanks had been filled earlier in the year and considerable of the precious fluid still remained. They reasoned that it would be wasted if they did not use it before the season ended, a few weeks hence. So what would be the harm if they went out for a few hours on the Sound on Sunday afternoon? But the Fuel Administration does not believe in discrimination and so the ruling went out that all boatmen must be treated alike in the gasoline conservation suggestion.

It was late Wednesday when Commodore Harrington of the Police Patrol Boat Reserve of New York City sent out to the Captains, Special Order No. 1, which read as follows:

POLICE DEPARTMENT
CITY OF NEW YORK

HARBOR DIVISION, POLICE RESERVE

September 11, 1918.
Special Order No. 1

Sir:

Your attention is called to the fact that many motor boats are operated on Sundays, contrary to the request of Fuel Administrator Garfield.

You are commanded to detail on Sunday, September 15, 1918, and every Sunday thereafter until further notice, such of your Lieutenants and Seamen as in your judgment are required, to watch the waters of your Patrol District and endeavor in a suasory manner, to stop the operating of motor boats thereon on those days.

Your men are to report to you at the end of their patrol, the names and addresses of persons they find so operating motor boats, together with the number and name of boat, owner's name and address and such other information as they may be able to obtain. Instruct your men to carefully note each violation of the Federal Regulations regarding the equipment of motor boats, should any such come to their attention.

Your men are expected to use only such gasoline, as will be required to patrol the waters to which they are assigned and which may be required while their boats are on active duty only.

Each patrol boat is to fly the Police Reserve Flag with the U. S. Yacht Ensign or U. S. Ensign and no other flag.

Your written reports of the results of the activities of your command on those Sundays, should be delivered to me in triplicate at my office on the Mondays following.

Very truly yours,
(Signed) M. J. HARRINGTON,
Commanding Officer,
Harbor Division, P. R.

As Order No. 1 was the first call to duty which had been sent out from Police Headquarters since the organization of the Harbor Division of the Police Reserve and as many minor details connected with the organization of the local units, called patrols, into which the Motor Boat Police Reserve is divided, had not as yet been perfected, it took some quick stepping to get the necessary action to put the Patrols in shape for duty on the following Sunday.

The Harbor Division is a branch of the regular police reserve force of the City of New York, the members of which have the same powers as those of the regular police force. The members of the Harbor Division are motor boatmen who can prove to their superior officers and police officials that they are capable navigators and small boat handlers and who are willing to swear that they will perform all police duties assigned to them. The members who are actual boat owners are given the rank of Lieutenants and others have the rank of seamen. There are also several captains in charge of certain lieutenants and seamen. The members make use of their own boats and pay their own expenses.

Up to the present time, the organization of the Harbor Division of New York Police Reserve consists of about 125 members and seventy-five boats. The men and boats come mainly from the ranks of the United States Power Squadrons, although membership in that organization is by no means necessary to assure membership in the police reserve.

Patrols of men and boats have already been assigned to Long Island Sound, East River, Hudson River, Gravesend Bay, Sheepshead Bay, and New York harbor. The reserve can be called out for emergency work of any nature on the waters within the boundaries of the City of New York. Thus when casual observers noticed that a few motor boatmen were not observing the gasless Sunday request as they should and it was reported to the Police Department, the natural body to be called to investigate the reports was the Harbor Division of the Reserve.

The writer, being a captain in the Police Reserve, it was his duty, working with Captains Jackson and Anness, the three men to whom the patrols on the East River and Long Island Sound were assigned, to work out the details for the first Sunday's patrol. Captain Anness was to take Patrol No. 8 on the East River from Whitestone to a line from Belden's Point to Fort Totten. Captain Jackson, Patrol No. 9, which included the waters east of City Island and around Harts Island, and the writer Patrol No. 10, which extended from the Belden's Point-Fort Totten line to the city line. Each of the three captains had from three to six boats with their lieutenants and seamen under him.

In Patrol No. 10, Lieutenant Lander with his Sunray was to be on duty from 9 A. M. to 1 P. M., the writer with Farad from 11 A. M. to 3 P. M, and Lieutenant Williams with Marilene II was to go on at 1 o'clock and off at 5.

Shortly after ten Sunday morning Farad with one seaman aboard started on her patrol, running down to her station at reduced speed in order to conserve as much fuel as possible and not create too much excitement or possible envy among the anchored fleet which must be passed on the outward trip. Hardly had our station been reached when violator No. 1 was observed a short distance ahead. A short chase and a few sharp blasts on the whistle caused her skipper to realize something was in the wind, and we went alongside. Three men were aboard a 25-foot cruiser which was towing a dinghy astern filled with eel pots. A few words spoken through a megaphone brought the polite reply that they had been fishing all night and were on their way home. Couldn't they anchor till midnight, was asked, but the answer in unison was "Oh, no! Our wives would be worried to death." "Couldn't we please go on this time and we'll promise to be good next Sunday," one of them ventured. "We're all patriots, you know," said another and the third, "We burn only 3 pints of gas an hour and we're out of food." The patrol captain was touched

(*Continued on page* 44)

Personalities

Some of the Men Who Have Helped to Give the Motor Boating Industry Its Present Standing

Carl W. Weiss

That Carl W. Weiss has spent more than half a lifetime probing and grappling with a thousand and one complex and problematical points that arose and varied with every increase in power and under every different condition of operation signifies the type of earnest, painstaking engineer who concentrates himself on one particular thing.

He has devoted his efforts almost entirely to the medium-compression surface-ignition two-cycle type of oil-engine which is so often termed semi-Diesel motor. Mr. Weiss is a great believer in this type in preference to the true Diesel engine and it is this class of

Carl W. Weiss

engine that he has concentrated his time upon.

In 1888 Mr. Weiss built his first internal combustion turbine, and although this was not successful, he has never abandoned the idea, and it is his opinion that this type of turbine, with superheated steam as one of the working mediums, is bound to supersede the piston engine, especially in the larger sizes.

Among the many models of his atmospheric engines, there was one particularly interesting, and we mention it here because it demonstrated the excellent thermal efficiency possible in that type of engine. Only 1-inch bore and 1½-inch stroke, this little engine could be held in hand while running at 4,000 r.p.m. A gas burner located at the cylinder head and controlled by a slide valve furnished the flame burning directly into the cylinder under atmospheric pressure during the outstroke of the piston. He built a number of this type, one of 8-inch bore and 20-inch stroke, furnishing power for a machine shop on 26th St., between 9th and 10th Avenues, in New York City.

The first Weiss four-cycle type engine was built about this time, and a number were sold in New York City, and several of them are said to be in operation to-day. In 1894 he completed his first two-cycle type engine known as the Mietz & Weiss oil engine. Most of these first engines are in regular service today. The first 10x12-inch horizontal engine of this type went to Woreth Brothers, 419 Jerome St., Brooklyn, N. Y., in 1897, and is furnishing power there today.

There have been manufactured and sold about 300,000 h.p. of engines de-

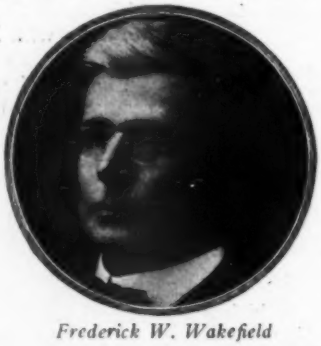
Graham W. Brogan

signed by Mr. Weiss and built directly under his supervision in the Mietz & Weiss plant. Approximately three years ago Mr. Weiss severed his connections with the Mietz & Weiss organization and devoted himself to laboratory work.

The Weiss Engine Company with whom he became associated is now putting in production the latest engine developed by Mr. Weiss, these engines incorporating all that Mr. Weiss has learned in the thirty years' experience in designing and building oil engines.

Graham W. Brogan

The new advertising manager of the Duesenberg Motors Corporation is one of those rare characters seldom found among men of his calling—an advertising manager who refuses to advertise



Frederick W. Wakefield

himself. Try as hard as we might, not one word concerning his past could we pump or squeeze from Graham W. Brogan. However, we can say that Mr. Brogan has been associated with the Duesenberg Motors Corporation for some time in the capacity of assistant to the general sales manager.

Frederick W. Wakefield

One of the most enthusiastic motor boatmen of the Middle West is Frederick W. Wakefield, president of the F. W. Wakefield Brass Co., of Vermilion, O. The lighting fixtures and Red Spot searchlight manufactured by this company are known to motor boat owners the country over.

Mr. Wakefield was born in England but came to this country when about sixteen years old. He went first to Cleveland, O., where in 1904 he organized the F. W. Wakefield Brass Company to manufacture house and marine lighting fixtures.

Being one of the first real motor boat owners in Cleveland, Mr. Wakefield and his boat Lotus are well known to yachtsmen of the Great Lakes. His interest in motor boating as a sport may be im-

Gerald L. Basil

agined from the fact that in 1906 he moved his business from Cleveland because he found the harbor at Vermilion a most convenient base from which to start on lake cruises. He has served as commodore of the Lakewood Yacht Club, and is commodore of the Vermilion Boat Club, one of the liveliest little boat clubs on the Lakes.

Gerald L. Basil

Another motor boat enthusiast is Gerald L. Basil, secretary and sales manager of the F. W. Wakefield Brass Co., of Vermilion, O. Born in the suburb of Lakewood where every water-wise Clevelander keeps his boat is sufficient to explain his leaning toward things nautical.

Mr. Basil has been with the F. W. Wakefield Brass Company for nine years and has literally grown up with the organization, and filled every position from bookkeeper and salesman to sales manager and purchasing agent. Previous to his entering the employ of the Wakefield company he was connected with the Cleveland office of R. G. Dun & Company.

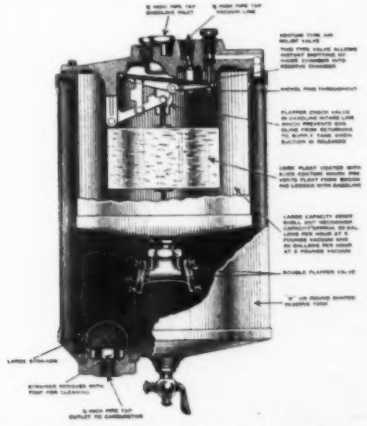
The Vermilion Boat Club also claims Mr. Basil as one of their members, but if left to us to decide we would say that it must be the enthusiasm and stimulus of two such energetic boatmen as Mr. Wakefield and Mr. Basil that has made the club one of the liveliest on the Lakes.

New Things for Motor Boatmen

Each month new parts, attachments, and fittings, interesting and invaluable to owners of large and small motor boats, are added to the devices already on the market. Announcements of these articles come to us in such numbers that in order to introduce all of them to our readers we have been obliged to omit descriptions and publish only illustrations with short explanatory captions. In doing this, however, we urgently invite our readers to write us for complete information, as we shall take the greatest pleasure in providing it, together with the name and address of the manufacturers from whom the products may be obtained.

Galvanized iron pumps are now being made in detachable and interchangeable sections. By the use of one or more middle sections the same pump can be used in any depth of hull, and as the rod is also jointed the pump can be used in restricted headroom. Another advantage is that should any part of the pump become damaged it can be replaced without purchasing an entirely new pump

A new life preserver suit that affords complete protection to the wearer. The hood can be dropped back from the face or closed water-tight over the head. The hood is provided with celluloid eyepieces and a long flexible breathing tube

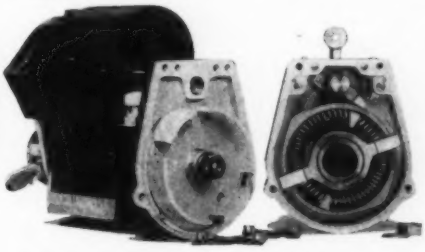


This vacuum fuel feed tank is built of extra heavy materials and in two large sizes for heavy motors. The capacities are 3¾ and 5 pints. It contains such new features as a check valve on the gasoline line, a strainer on the outlet, and a large size drain

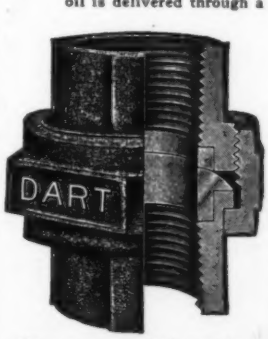
The four blades of this screw-driver vary from 1/16 to 7/32 inches in width. The three smaller blades nest within the handle while a shield covers the fourth, when not in use

These carbureter connections are made with standard carbureter flanges and standard pipe threads in various types and sizes. With these connections it is possible to fit any carbureter to any motor

When used in a large private boat-house or at a yacht club these oil storage tanks should save their cost in one season. The oil is delivered through a measuring pump

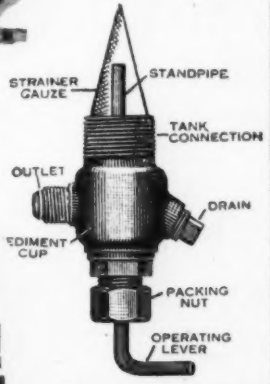


A new impulse starter for a well known magneto. It is contained within a dust- and water-proof housing and is automatically thrown out when the motor speeds up



Have you ever had trouble taking down your pipe lines, especially the exhaust? These unions with iron bodies and ground bronze joints can be repeatedly put up and taken down, and need no gaskets to make up tight

Here is a device that fills a long felt want. A gasoline tank vent for either gravity or pressure fed. Air can be drawn into, but no fumes or gas can escape from the tank, saving gasoline



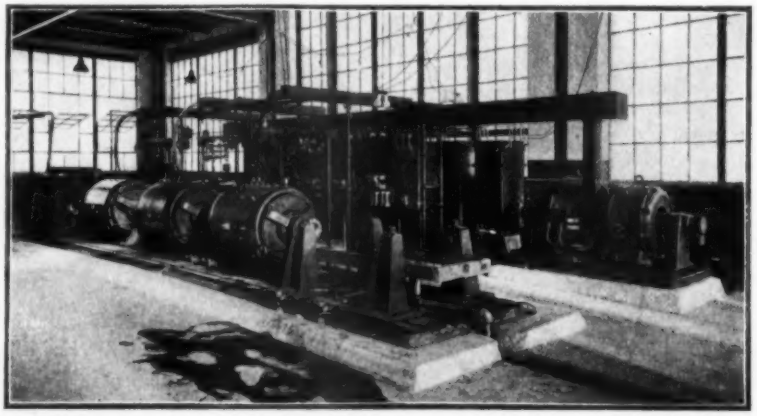
This tank connection serves many purposes. It strains all the gasoline before it leaves the tank, collects fine sediment that works through the gauze and maintains a reserve supply of gasoline in the tank that can be drawn on by turning the lever

Do not fail to write to the editor if you desire information concerning any of the above new things

Proving the Motor's Worth

Some of the Tests to Which Manufacturers Put Their Motors Before Shipping Them to the Boat Owner

THE practice of engine manufacturers designing and building a motor and then putting it directly on the market and letting the purchaser learn from experience whether every part is adequate to the work it must perform has long since been abandoned by all reputable builders of engines. When a new model is brought out now it is first put through a series of rigid tests which will prove whether the motor is economical, whether all the parts will function properly and whether all the parts and accessories are of adequate strength. After the motor has successfully passed these tests it is put into production and the purchaser is assured that the motor will operate satisfactorily.



The electric dynamometer consists of a frame to which the engine is bolted, three generators that can be coupled to the engine, and the instruments on the switchboard

In the early days the tests generally consisted of running the motor with a Prony brake attached, computing the power developed, taking indicator cards to show the compression and expansion pressures and measuring the fuel consumed. The Prony brake was not entirely satisfactory and was soon superseded by the fan dynamometer and water brake. The fan dynamometer consisted of nothing but a sort of paddle wheel turning in air while the water brake had paddles or discs turning in water. Both types were calibrated so that it was known how much power was required to turn it at a given speed.

The next step was the introduction of the electric dynamometer, which gives very accurate results, and then running a motor to destruction to find the weak spots, correcting one defect after another until the motor is practically perfect.

One of the most complete testing plants for internal combustion motors has recently been completed by the Duesenberg Motors Corporation, in which experimental tests as well as production tests can be run. The building is 240x67 feet and of the latest type construction, steel frame, brick and concrete with the sides nearly all glass. The exhaust gases are disposed of through the two large brick stacks, and as the amount of cooling water required is very large, the same water is used over and over. This is accomplished by using a cascade 50 feet in diameter and having six steps or baffles. The hot water is discharged at the top and is cooled by contact with the air as it descends from one baffle to another. It has a capacity for cooling 75,000 gallons of water per hour.

The exhaust gases are disposed of through the two tall stacks. The water used in the motors is cooled by running over the cascade and is then used over again

The building contains in addition to the motor testing apparatus, complete chemical and physical laboratories for analyzing and testing the materials which enter into the construction of motors. In the main testing room, which is 176 x67 feet, twenty-one motors can be tested at one time. Each testing stand is provided with individual gasoline, oil, and water tanks mounted on scales, so that the exact amount used can be determined by weight. There is also apparatus for recording the temperature of the water and oil before and after going through the motor. It is the experimental testing apparatus, however, that is the most notable feature of the entire plant.

This experimental testing apparatus consists of an electric dynamometer made up of three 300-400 h.p. Sprague generators arranged in tandem, so that one or all can be coupled up to one motor, and has a capacity up to 1,200 h.p. If smaller motors are being tested, one can be coupled up at each end provided one motor does not exceed 400 h.p. and the other 800 h.p. The motors under test are mounted on an adjustable frame at either end of the generator sets.

Each generator is provided with a spring dynamometer as well as a beam scale for measuring the torque. Mounted on the switchboard in back of the dynamometer

(*Continued on page* 52)

AMERICAN MARINE MOTORS

The Standard Kid—A Four-Cycle Motor

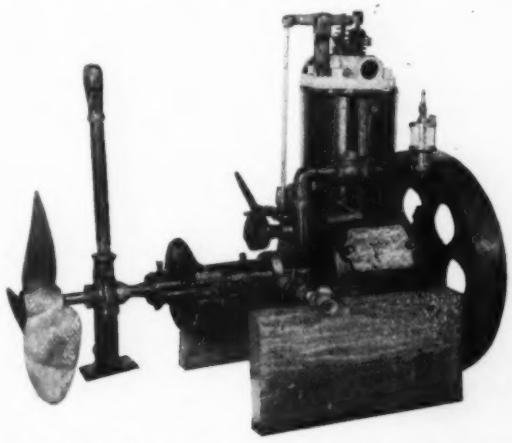
A SMALL four-cycle motor for fishermen or other motor boatmen who require a motor having reliability, flexibility, and economy of operation, and one for which spare parts can be obtained in any community. That is a short description of the Standard Kid motor built by the Chandler-Dunlap Co., of Seattle, Wash.

The Standard Kid motor is built in one- and two-cylinder models. It is designed to operate at a normal speed of 650 r.p.m., but the heavy flywheel allows throttling down to very low speed, thus making it particularly valuable for trolling.

Another feature of this motor is that Ford engine parts are used wherever possible. The manufacturer claims that the workmanship and material in these parts are superior to what can be made in a small shop. Another advantage, and a very important one, is that repair parts can be obtained in almost any town or community. The Ford parts used are pistons, piston rings, connecting rods, valves, springs, gears, and various other of the smaller parts.

With a bore of 3¾ inches and a stroke of 4½ inches the single-cylinder motor develops 3 h.p. and the two-cylinder model is rated at 6 h.p. It is of the valve-in-head type and operates economically on gasoline or distillate. Lubrication is by means of an oil cup for the cylinders, oil in the base for the crank bearing and grease cups on the main shaft bearings. A bronze plunger pump with large size check valves and piping assures an ample supply of cooling water. The inlet valve is automatically operated by the suction stroke of the motor, but the exhaust valve is mechanically operated by a cam turning at one-half crankshaft speed.

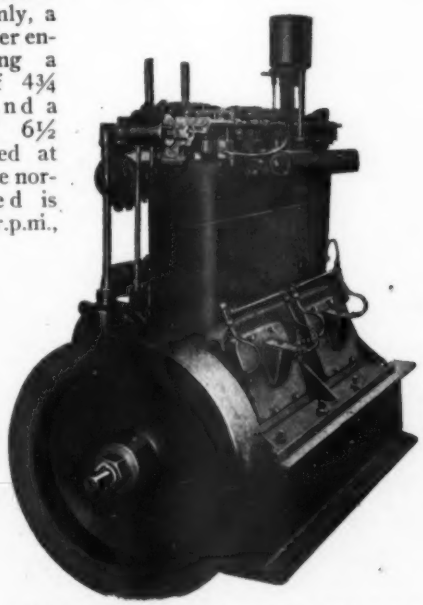
The equipment furnished with these motors consists of a Schebler carbureter, Cuno timer, one-way clutch, bronze shaft and propeller, bronze stuffing box and stern bearing, and complete electrical ignition outfit of spark plug, coil, switch, batteries, and wire.



The Standard Kid 3 h.p. four-cycle motor is of rugged construction and intended for use in fishing and other small boats

The Quayle Marine Oil Motor

THE Quayle heavy-duty oil-burning marine motor recently put on the market by the Commonwealth Motors Co., of Chicago, Ill., embodies in its construction several new features. At the present time this motor is built in one size only, a four-cylinder engine having a bore of 4¾ inches and a stroke of 6½ inches rated at 25 h.p. The normal speed is 600-650 r.p.m., but its extreme flexibility allows of a speed range from 200 to 750 r.p.m.



A 25 h.p. heavy-duty four-cycle oil-burning four cylinder marine motor of the Hvid type

This engine is of the four-cycle type and operates on the Hvid principle, thus doing away with the use of a carbureter, electric ignition system or any surface ignition apparatus. Ignition is by means of the heat of compression only.

The operation is similar to that of a four-cycle gasoline motor except that on the suction stroke air only is drawn in to the cylinder. At the same time the proper amount of oil is admitted to a small steel cup projecting down into the combustion space. The only communication between the cup and combustion space is through a very narrow slot in the cup.

As the pressure increases on the compression stroke there is a corresponding rise in temperature both in the cylinder and the cup. When the temperature rises in the cup the lighter fractions of the oil ignite. The expansion ot the air in the cup resulting from this combustion forces the rest of the oil out through the narrow slot in the form of a fine spray that is burned immediately on coming into contact with the compressed and heated air in the combustion chamber.

One of the unusual features of this motor is that the cylinder walls are cast separately from the water jacket which surrounds them. This allows of their being machined on both sides, thus assuring a uniform thickness of metal and eliminating all tendency for cylinder distortion resulting from uneven heating. Another advantage is that the water jackets can be freed of all molding sand at the foundry and should they later become choked with mud or scale every point within them can

(*Continued on page* 46)

Helpful Hints

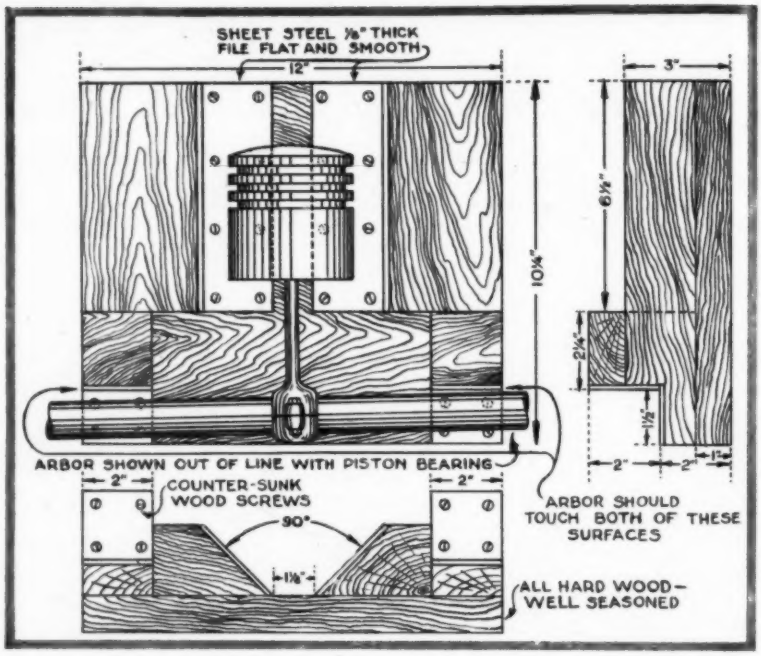
A Connecting-Rod Bearing Jig

WHEN making repairs to gasoline engines it is frequently necessary to realign the bearings in the connecting rods. The jig illustrated on this page can be easily made of hard wood and faced with steel plates where subject to wear.

The wooden frame work should be made from well seasoned oak with all joints carefully cut and fitted so that there will be no play in the frame. Great care must be taken to get an even and true bevel on the blocks on which the piston lays and to have them at exactly right angles to the blocks against which the arbor bears.

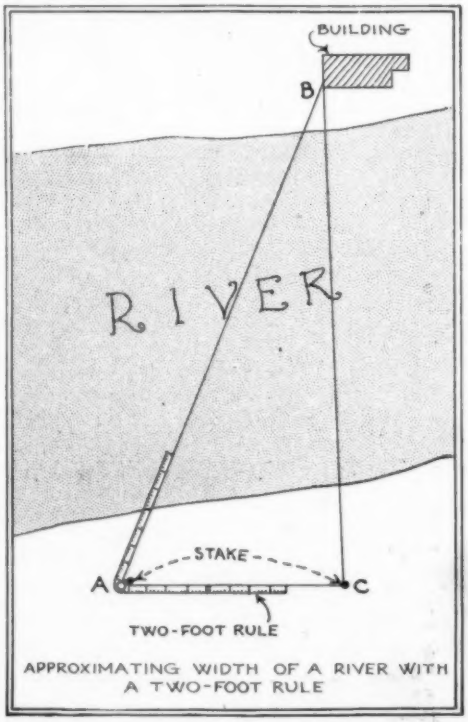
Steel plates ⅛-inch thick should be secured to the bevel blocks and arbor stops with countersunk-head wood screws. After the screws are all driven the surface of the plate should be gone over with a file to remove any burrs or projecting screw heads.

In use, the crank-pin bearing is bolted around a mandrel, the piston is laid between the bevel blocks and gradually pushed forward until the mandrel comes in contact with the stops. If the bearings are properly aligned both ends of the mandrel will come into contact with the stops.



Grinding Valves in Removable Cages

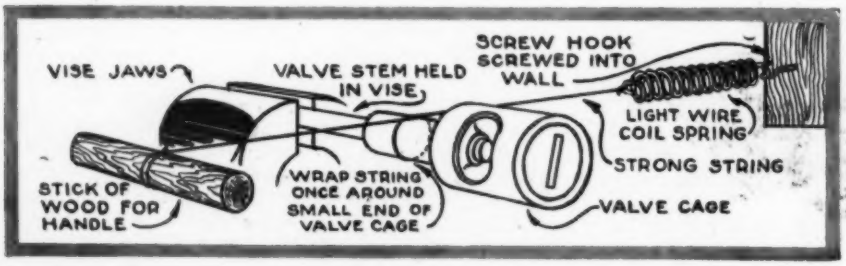
WHEN grinding the valves of a gasoline motor with removable cages it is generally a tiring operation to hold the cage in one hand, the valve stem in the other, and rotate them in the approved manner. The scheme shown in the illustration is a great help in doing this work. The valve stem is securely gripped in the jaws of a vise and a strong piece of string is given one complete turn around the small part of the cage that forms the guide. One end of the string is attached to a light coil spring fastened to the wall and a small piece of wood forming a handle is fastened to the other. To grind the valve it is then only necessary to pull on the string, slack off and let the spring contract and repeat the motion.



APPROXIMATING WIDTH OF A RIVER WITH A TWO-FOOT RULE

Simplified Triangulation

THE width of a stream of water can be readily approximated with a 2-foot rule as shown in the accompanying illustration. Any point, C, is selected, from which a fixed point, B, on the opposite side of the stream can be seen. A stake is driven at C. Then measure off any convenient distance, AC, with a 2-foot rule, and drive at A a stake. The angle between BC and AC can be any convenient angle. Now, plot to scale the positions of points A and C. The angles ACB and CAB can be ascertained in this way: At stake A line up one leg of the rule with the inaccessible point B and line the other leg with C. Hold the legs of the rule firmly, and carry it to the sheet of paper upon which the plot is being made. Place the apex of the angle formed by the two legs of the rule on the point A on the paper with one leg extending along the line AC. Then draw the line along the other leg of the rule. Transfer the angle BCA to the paper in the same manner. The intersection of the lines CB and AB gives the position of point B and the distance BC can then be scaled.



News of the Month

ON December 7, the numbering bill requiring that all motor boats be numbered by the Department of Commerce will go into effect. While most motor boatmen will assume that the new law will not affect them until the boating season of 1919, yet it should be remembered that the law states that all motor boats shall display a number on each bow on and after December 7, 1918. No reference is made to whether the boat be in commission or hauled out on land. The conclusion which therefore must be reached is that a boat in winter storage or in dry dock must be numbered. Consequently it will be well for every one to see to it that the boat's number is in place within the next five weeks.

MANY motor boat owners of New York City and vicinity have been formed into a branch of the Police Reserves of New York known as the Police Harbor Reserve. During the period recently when the gasless Sunday request was in operation, these motor boatmen with their boats were ordered out to patrol the waters around the greater city to apprehend gasoline violators. The principal purpose and object of the Police Harbor Reserve is to assist the Federal, State and Municipal authorities in the enforcement of the laws and the maintenance of order in cases of emergency on the waters of New York City. The officers and members are sworn in the same as the members of the regular police force and have the same rights and powers on land and sea.

THE next issue of MoToR BoatinG will be of special interest to everyone who has a drop of the love of the sea flowing through his veins. It will be our Annual Buyers' and Export Number. You all know how valuable past December issues have been. We know it too, for the issue generally becomes exhausted almost as soon as it is off the press. This year's Buyers' Reference and Export Number will be no exception other than its exceptional value. Already much of the data is in our hands and we can promise you a real surprise.

Our February number will be a real show number. In all probability, there will actually be no motor boat show in 1919 for obvious reasons, so MoToR BoatinG with its February number, will take the place of the Annual Motor Boat Show held in New York City. It is a little too far off just now to tell you more of our plans, but just keep in mind you are going to be able to attend a motor boat show this winter after all.

QUITE rightly the Fuel Administrator has ruled that there shall be no more motor boat racing for the duration of the war. This ruling will be regretted by few if any motor boatmen. Motor boat racing has been on the wane for the last two summers, a majority of the racing enthusiasts have showed no interest whatsoever in the sport and have refused to allow their own boats to compete. Aside from the Gold Cup Races held at Detroit in September, the season's events have been a failure. Even at Detroit there was only one new boat this year and the gallery of spectators was much smaller than formerly. No long distance cruiser racing was attempted this year and the various club events which were scheduled were mostly called off or started with less than one-quarter of the usual number of starters. Most of the racing men are now in the service and the builders of racing motors are engaged in more essential occupations just at present. Until they return, the trophies will remain on the yacht club mantels where they left them but after it is all over, we can count on some rivalry of a kind never encountered before.

Lieut. Henry Bowes, U. S. N. R. F. fleet commander of a squadron of American submarine chasers. Lieut. Bowes was killed recently when a tanker shelled his boat by mistake off the United States coast

THE 110's have been in actual action with the enemy fleet in the Mediterranean according to press dispatches in the daily papers. In the Durazzo fight early in October, a squadron of twelve American submarine chasers successfully screened the big ships in attack and were under heavy fire from the enemy. According to reports, one enemy submarine was sunk and two others put out of action. The squadron was in command of Capt. C. P. Nelson and Lieut. Commander P. H. Bastedo. Most of the men aboard were naval reservists who were formerly yachtsmen and enlisted in the reserve at the outbreak of the war. Alfred F. Loomis, who was associate editor of MoToR BoatinG until he enlisted in the Reserve, was probably on one of the chasers in the action. After enlisting in the second naval district, he was assigned to a chaser which was on duty on this side of the Atlantic for some months and then made the trip across to the Mediterranean last winter with eleven other chasers. All of the boats were built by American motor boat builders and each was powered with three Standard motors.

Activities of the National Association of Engine and Boat Manufacturers

By Ira Hand
Secretary N. A. E. & B. M

THE appointment of a War Service Committee to work specifically in the interests of the Marine Internal Combustion Engine Industry of this country before the War Industries Board and other branches of our Government is a big step forward in the right direction.

At the general meeting of marine engine manufacturers held in the offices of the Chamber of Commerce of the United States, Riggs Bldg., Washington, D. C., on Friday, September 27 last, the following representative manufacturers were elected to serve on this committee:

> James Craig, James Craig Engine & Machine Wks. Jersey City, N. J.; Charles A. Criqui, Sterling Engine Co., Buffalo, N. Y.; Ora J. Mulford, Gray Motor Co., Detroit, Mich.; Charles W. Pank, Fairbanks, Morse & Co., Chicago, Ill.; Eugene A. Riotte, Standard Motor Construction Co., Jersey City, N. J.; J. A. Seymour, McIntosh & Seymour Corp., Auburn, N. Y.; Richard R. Young, Union Gas Engine Co., San Francisco, Cal.

Mr. Seymour, whose name was presented and favorably acted upon, was unable to be present at this meeting and he has since notified the committee that, much to his regret, it will be impossible for him to serve owing to illness.

The committee is for the present composed of six members, all of them being broad-gauged men well known throughout the trade, and a careful analysis of the make-up of this committee will disclose the fact that the individual concerns represented by these men cover every phase of marine internal combustion engine practice as it is exercised in this country today. The interests of builders of motors of the Diesel type, as well as the semi-Diesel, kerosene and gasolene, including both the commercial and pleasure ends of the marine industry, are well represented in the make-up of this War Service Committee, which is peculiarly typical of the industry in its present stage of development.

The committee, as at present constituted, met in Washington on Wednesday last, October 9, and elected Eugene A. Riotte, president of the Standard Motor Construction Co., Jersey City, N. J., as its chairman. As the dominant factor in a business which has grown by leaps and bounds in serving both this country and our Allies with its product, the War Service Committee possesses in its chairman, Mr. Riotte, a leader who will bring to bear upon our problems the clear-minded vision and foresight of a man who has successfully coped with the unusual exigencies developed by war conditions.

Following the election of a chairman the committee got in touch with the Automotive Products Section of the War Industries Board, and also went into conference with the Statistical and Conservation Committees with regard to certain conditions that must be met before the War Service Committee can properly prepare to take up this work in detail. One of the first things to be done will be the filing of a questionnaire by every engine builder of repute in this country. This questionnaire will be along the lines of those required of other industries by the War Industries Board. The form has already been made up and is being forwarded to Washington for the approval of the proper authorities before it is to be sent out to the marine engine builders. When the builder has filled out and signed his questionnaire it must be returned at once to the office of the War Service Committee, 29 West 39th Street, New York City, from whence they will, when all have been collected, be turned over to the War Industries Board.

In view of the nature of some of the information that will be asked for, the replies will be held to be strictly confidential and the material in the questionnaires will be used solely for the purpose of benefiting the condition of the individual builder wherever possible.

A priority rating for the entire industry is to be given, and this rating will depend entirely upon the answers given in the questionnaires. Builders who wish to secure for themselves a proper position on the preference list of industries and plants must also carefully fill out the application form which will be sent them for that purpose in addition to the questionnaire.

This entire proposition is of intensely vital importance to our industry today, and it behooves every builder who anticipates a continuance of his business to cooperate with the War Service Committee in every possible way.

Some of the members of this committee represent concerns that are also members of the National Association of Engine & Boat Manufacturers, Inc. Following out, however, the precedent already established by the War Industries Board in its authorization of War Service Committees representing other industries, the members of this committee were selected from the industry as a whole and, in this way accorded, they must command the whole-hearted assistance of every builder whether large or small of marine internal combustion engines in the United States.

The Association's numerous bulletins outlining materials and equipment wanted by the Navy Department, U. S. Shipping Board and other Government activities are going forward every week, or oftener, as occasion may require. Much of this information is of such a character that only a certain proportion of our members might be interested in bidding on same, and where this occurs the data contained in these schedules and proposals is forwarded to such members as quickly as it is received from Washington. When, as often happens, a variety of materials is included in the proposals received, the information contained therein is sent out in condensed form to all members. This work has been carried along steadily since it was first inaugurated last winter and, although in many cases the time limits for bids are very short, it is known that in this way many of our members have been placed directly in touch with orders whereby they have been enabled to serve the needs of our Government as well as to keep their own plants busy.

An interesting communication recently went forward to our marine engine building members containing information regarding supplies that are being sought by the British Ministry of Munitions in this country. Further information with regard to this matter is on file at the Association's office, and the Secretary will be glad to place the facts at the disposal of any members who may seek additional data.

Members of the Association will be interested to learn of the appointment of Albert E. Eldredge as Treasurer of the Geo. Lawley & Son Corp., Neponset, Mass. Mr. Eldredge is well known to many of the older members, having served as Treasurer of the National Association in 1906.

Yard and Shop

Notes of Interest to Both Owner and Manufacturer

Mahogany Log Importations

BY a new ruling of the War Trade Board all outstanding licenses for the importation of mahogany logs and mahogany lumber have been revoked as to ocean shipment after September 10, 1918. Hereafter no licenses for the importation of these commodities will be issued except to cover such shipments as the Director of Lumber of the War Industries Board shall certify to be suitable and necessary for Government use.

Baked-on Metal Finishes

The Enameling & Stamping Co., of Long Island City, announce that they have taken over the plant of the Fickling Enameling Corporation and have re-equipped it fully with all up-to-date appliances and it now has the largest capacity of any plant of its kind in the East.

That baked-on finishes are more durable and retain their glossiness much better than air-dried paint is a well-known fact. Persons interested in baked-on finishes or rust-proofing will now be enabled to have their work done in the East.

The plant is equipped for finishing or refinishing with coatings requiring a baking temperature up to 400-600 degrees, including transparent rust-proofing and acid-proofing but not high temperature vitreous porcelain enamel.

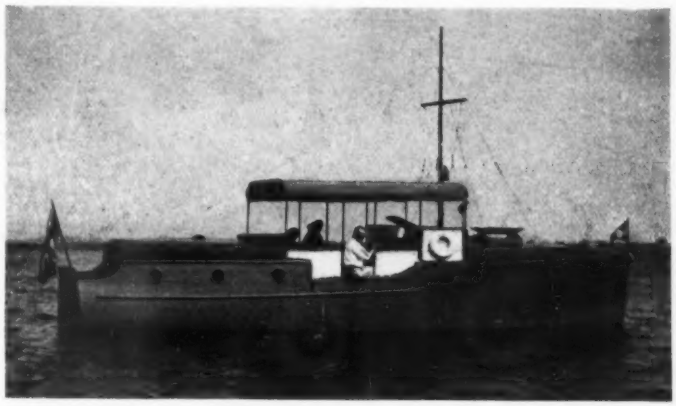
Foreign Buyers Appreciate Shipping Conditions

That the foreign trade appreciates the difficulties of present day shipping conditions is clearly shown by the circumstances attending a shipment of twelve marine motors to Sweden by the Universal Motor Co., of Oshkosh, Wis.

This shipment was loaded aboard the S. S. Magda which put to sea but was compelled to return to port as a result of a fire in the hold. The salt water used in putting out the fire damaged the engines to such an extent that it was impossible to put them in good condition without returning them to the factory.

Between the time of receiving the order and the return of the damaged engines to the factory costs had been steadily rising so that the increase of twenty per cent. in price necessitated an adjustment. This was put up to the buyer on a basis of each paying one-half of the increased price. The consignee was entirely satisfied with this offer and it enabled the Universal Motor company to reproduce the twelve motors and ship them without loss, although the margin of profit will be pretty close.

This incident is an encouraging indication of the spirit of co-operation which foreign buyers are ready to show in their transactions with American manufacturers.



Koto, of Montreal, a 35-footer powered with twin 20-h.p. Kermath motors

Leo, of Cheboygan, Mich., powered with a 20 h.p. Kermath motor

An Essential Industry

The following letter has been sent out by the War Service Committee of the ball bearing and steel ball industry:

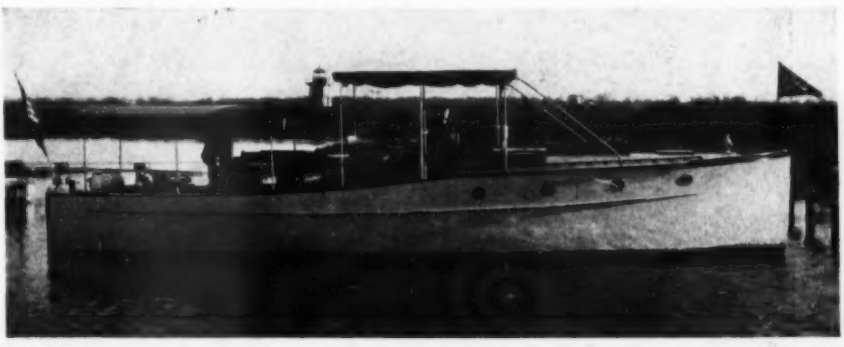
"The Priorities Division of the War Industries Board, in circular No. 19, dated September 3, 1918, has placed manufacturers of ball bearings and steel balls on the Preference List with a rating of "Class B-3," conditioned upon their executing and filing pledges of co-operation with an observance of the rules of the Priorities Division.

Strictly a One-Man Boat

Safety First, H. H. Hanna, Jr.'s little cruiser, hailing from Cleveland, O., was designed by Wm. H. Hand, Jr., of New Bedford, Mass., and built by the Rocky River Dry Dock Co., of Rocky River, O. She is a V-bottom of sturdy construction, yet with a very excellent speed, attaining 22 m.p.h. with a Model F, six-cylinder Sterling engine, which develops 85-125 h.p., the higher rating being obtained at 1,200 r.p.m.

Safety First is a one-man boat in every sense of the phrase. She can be taken out by one man and brought back and docked by the helmsman with assistance from no one. The motor is equipped with electric starter and generator, and all controls are centered on the steering column.

Cruisers like Safety First not only have stability themselves, but lend it to the boating sport. This boat has every facility for living aboard in the summer, having berths for four, and an additional two could be accommodated if desired. She requires no crew, may be safely handled by an owner with the same ease of control as he associates with his touring car, and is perfectly capable of traveling like



Safety First, a Sterling powered boat, is a good example of bridge deck cruiser

distances at practically the same average speed as he would attain on an automobile tour. It simply raises the question to what more can be required of a motor boat.

Is Your Motor Too Hot?

This distance type Boyce moto-meter is especially designed for aeroplanes, motor boats, stationary engines, and other installations where our radiator type instrument cannot be installed on a line within the operator's vision.

This instrument can be used for a great variety of testing purposes, such as engineering work in the development of cooling systems, for the designing of radiators, and is especially recommended for research work where the exact water temperature of different parts of the cooling system is desired.

The new life preserver suit manufactured by G. H. Masten Co., Inc., of New York City

The distance type Moto-meter is extremely durable and accurate, and is designed and manufactured with the utmost precision and scientific workmanship.

The instrument head can be installed anywhere convenient for easy reading by the operator.

The maximum length of tubing supplied is 22 feet, and outside diameter of tubing ⅛-inch; material, copper; can be bent to a forty-five degree angle.

Accuracy is guaranteed, plus or minus one degree Fahrenheit, under any and all conditions.

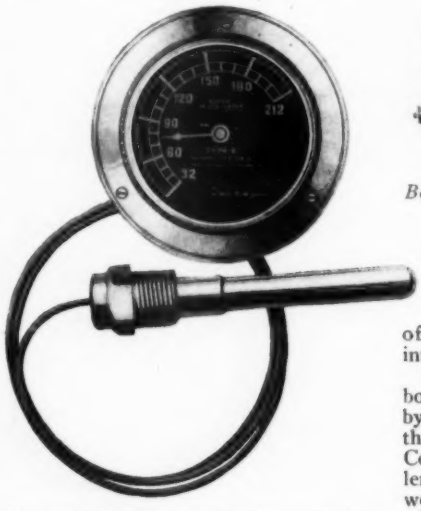
This instrument is in no way affected by varying temperatures to which the head or tubing may be subjected. Its simplicity of design, its absolute accuracy and positive operation, has made this instrument the recognized standard.

A 30-foot Buffalo powered boat built by B. R. Herman & Co., of Karachi, India

Sextants Wanted

The Navy is in urgent need of sextants, either new or used, and any person having one or more of these instruments is requested to bring them to the Branch Hydrographic Office, 78-80 Broad St., New York City, where they will be inspected as to their fitness for use and an appraised value placed on them.

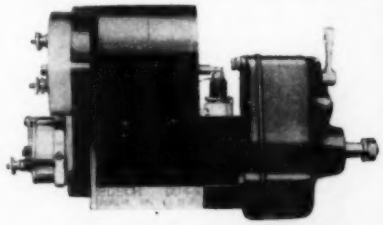
Sextants with ivory scales or those needing more than minor repairs or adjustments, are not desirable for Navy use. Payment will be made to the owners of the instruments accepted for this purpose.



The extension type moto-meter, manufactured by the Moto-Meter Co., of New York

Motor Boats in India

Slowly but surely India is waking up to the possibilities of the motor boat. It is only recently that we have heard much about it, for the reason that until the outbreak of the war most of India's needs were supplied from England, but during the last couple of years the marine motor industry of America and the Far East have come into closer touch.



Bosch DU4 magneto equipped with their new automatic impulse starter

That the newer type of Indian built boats are not lacking in style is proven by the picture on this page. The boat is the Buffalo, built by B. R. Herman & Co. Karachi, India. She is 30 feet in length overall with 6 feet beam. The wood used in her construction is mostly of the kind known as Pucca teak. The power is a 16-20 h.p. Buffalo auto marine engine.

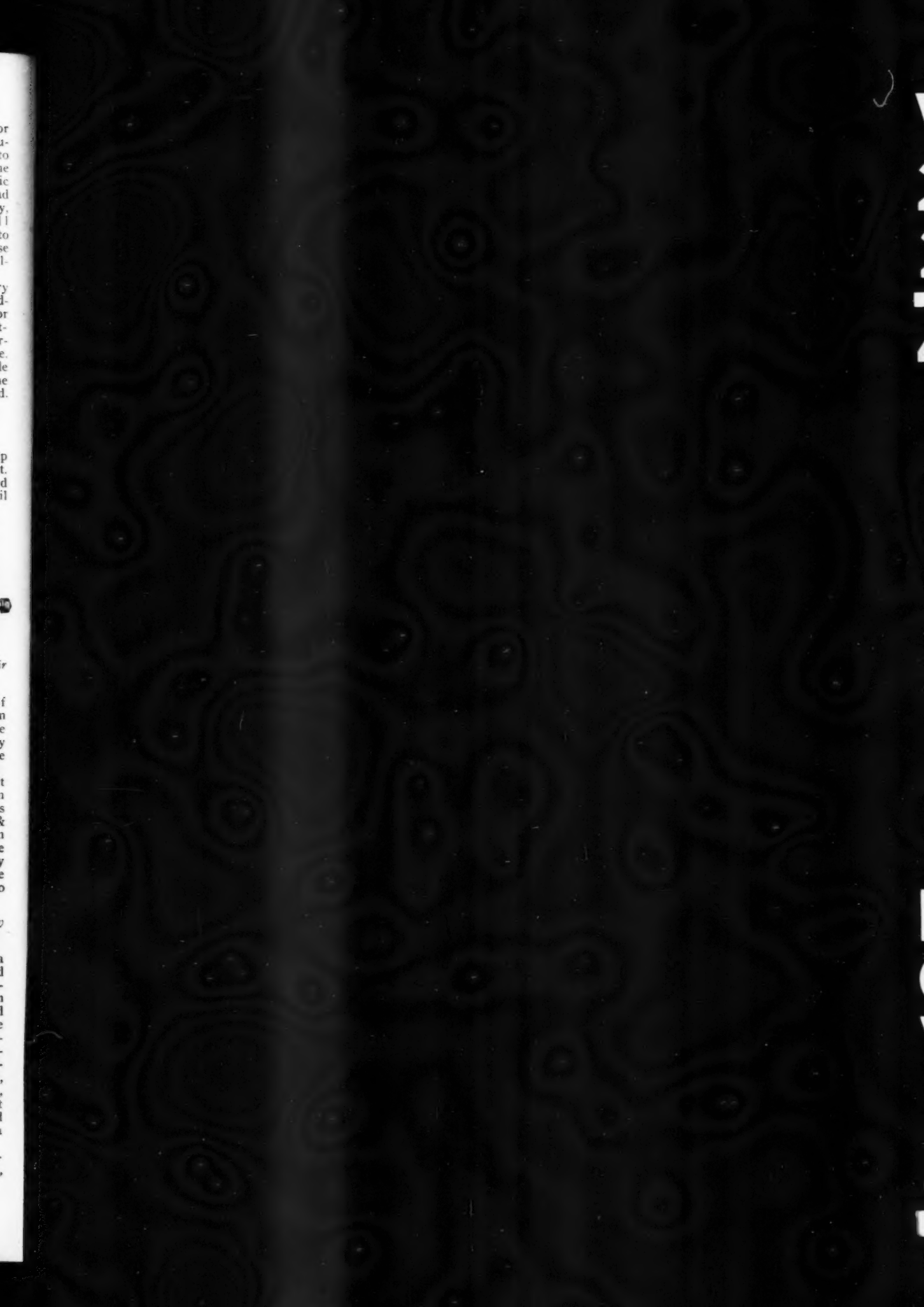
A Twin-Screw Cruiser

Having had a runabout powered with a 20 h.p. Kermath Vanadium motor that had made a remarkable record for reliability it was only natural that when Arthur Vaillancourt, of Montreal, Can., had a larger boat built he would power it with a Kermath.

Mr. Vaillancourt's new boat,

(*Continued on page* 48)

Part of the assembling shop of the Wisconsin Motor Mfg. Co. of Milwaukee, Wis.



A Day with the Gas Slackers

(*Continued from page 27*)

and after agreeing with them that their sport was innocent yet that that was no excuse he wished them Godspeed and on their way they went rejoicing after profusely expressing their thanks.

Inspection No. 1 had been a success. Even with a crew having a somewhat rough outward appearance, the reception had been very polite and every request complied with.

The crew of Farad gained courage. Off on the horizon, bound toward Manhasset Bay we could see an open boat with two forms in the bow, making its way inshore. We opened up our four-cylinder Sterling a bit and steered a course to head off the visitor. When it was close enough, we gave the sign to come alongside, which was complied with, but along with it were scowls and frowns from a young woman who occupied the bow transom seat in close proximity to the helmsman, who was a young lad of twenty or thereabouts. The latter also had a none-too-pleased look on his face. He didn't like the idea of being disturbed from his apparent joy riding and his face showed it. When we volunteered the information as to why we stopped them we were met with a feminine broadside of "You horrid thing!" and the like. "It's just an outrage to hold us up when we are here on business," came over the bow also from the same source. When the officer asked the young man who had reported that he was the owner of the boat, what the nature of the business might be, he answered, "Well, I had to go over to City Island last night to see a man." More frowns from the first mate in the bow and considerable punching the owner in the ribs. Just then both of them must have realized that had the patrol officer taken them seriously and so reported their reason for being out on the water on a gasless Sunday, that there might have been a big scandal started in the little town of Port Washington, where both of them lived before now. A report that two people like that, out all night on Long Island Sound in an open boat, would have looked nice on the police blotter, that is until some cub reporter noticed the entry and then — But we were not empowered to question the veracity of any one's statements, so after a little talking to, we let them go their way,— the way which many two in an open boat have gone before.

Hardly had we left No. 2 astern than we sighted a big converted auxiliary cat coming at us full speed, with a man and a boy aboard. We gave him the sign, but he simply yelled at us that he was coming to anchor "over there." We gave chase with fire in our eyes and were soon overhauling him. He saw that we were faster, so ever the bow went his mud hook with a splash. We ran alongside and in a none too gentle voice demanded, "Well, how about it?" "How about what?" came the reply. "How about that flag when

(*Continued on page 44*)

A Day With the Gas Slackers

(*Continued from page* 43)

you're ordered to stop," we said, pointing with great pride to the green and white police reserve flag that we were flying at the bow staff of Farad. "And, furthermore, what about being out using gas on Sunday?" we continued. The remark about the police flag evidently hit true, for immediately his manner changed to one as meek as a lamb and with bows of apology he acknowledged that he had not noticed the flag. "But don't you understand that we're inquiring about using gas on Sunday?" we repeated. "No, I don't understand," said the old salt. "Where have you been for the last three weeks?" we asked. "At anchor down at Lloyds," was the innocent reply. "Seen a newspaper lately?" "No." "Don't know who's winning the war?" "I can guess that," was the answer. "And you haven't heard about the Fuel Administration's request about refraining from using gasoline on Sunday?" "No, honest, mister, I haven't." Then we went into the subject very completely with him and he listened to all intensely and at the close replied, "Well, what do you know about that?"

We believed his story. He promised to refrain from further Sunday sailing and even offered to remain at anchor till midnight before continuing his cruise homeward, but this we informed him was not necessary. But evidently he had been thinking it over after we left, for when we passed the same spot five hours later on our way home, he was still at anchor.

(Moral—If you want a complete rest and wish to get away from the world and its cares, go on a motor boat cruise to Lloyds.)

Our courage and confidence was growing. We had made three hold-ups in a very few minutes with no fatal results. All three had been so different in their nature that we now were prepared to meet anything that might come.

Next we sighted a 35-foot raised-deck cruiser with a man and lady aboard, bound east on the Sound. We intercepted the boat and before we had time to challenge her captain, he cried out to us at the top of his lungs, "We've already been held up four times. Do you want our story again?" We replied, "Yes," whereupon he gave us his name and address and told us that he had lost his watch overboard the day before and was bound for the spot to look for it, as it was now low-tide. He looked honest so we gave him the signal to proceed and as he passed beyond the city line, he looked much relieved.

Helen, a little 22-foot open boat, was the next craft to enter our net. She had only two men aboard and upon being questioned, the man at the wheel stated that they were working men and Sunday was their only day off. They had been on a vacation several weeks before and had left their tent on the beach up the Sound and were on their way to get it. It might not be there if they left it there much longer, they suggested. "All right," was our reply and away went their single lunger with its spiteful exhaust.

As we were lying off Stepping Stones Light with our motor idling, about midday, little Dollie, a small glass-cabin cruiser, attempted to run across from the fishing grounds to her anchorage back of City Island, perhaps a mile distant. Aboard was William Harris, a man with an honest face, and his son, William, Jr., a little tot of seven or thereabouts, who looked as though he needed as much of the great outdoors as it was possible to give him but who seemed to be as much of a boatman and enjoying the trip as much as his parent was relishing his son's companionship. Both were keenly interested in every question we asked them and replied without any hesitation. The father explained that he had been out all night fishing, not more than a mile from his home at any time. He purposely had not gone further from home realizing that real fishing could only be had at about daylight on Sunday and that would mean returning home on a gasless day much against his wish. But he had not ventured out on the previous two Sundays and even this time he had gone out on Saturday night so as to be only half guilty. Furthermore, he was out to get fish for his own family which would mean a saving in food and therefore why shouldn't he be allowed to use the quart of gas that would be required for his 3 h.p. motor? As he exhibited a nice catch of flounders and looked up from his tiny 2x3 cockpit at us for an answer to his last question, we realized the unjustness of any law to fit all cases and with no chance for one's discretion to be used in its enforcement. Here was an instance where a great deal more good would come from allowing this man and his son free and unrestricted use of his boat on the few Sundays during the year on which the weather is suitable than to rule him out and perhaps deny them health and food simply because some people are gasoline hogs. At the most a gallon of fuel a Sunday would be his limit for all day trips. As he was using his boat probably a cup full would be nearer the correct estimate for the amount of gasoline consumed in his little cruiser. Yet the owner of Dollie was loyal to the core and without hesitation volunteered to tie up his little craft for the remainder of the season.

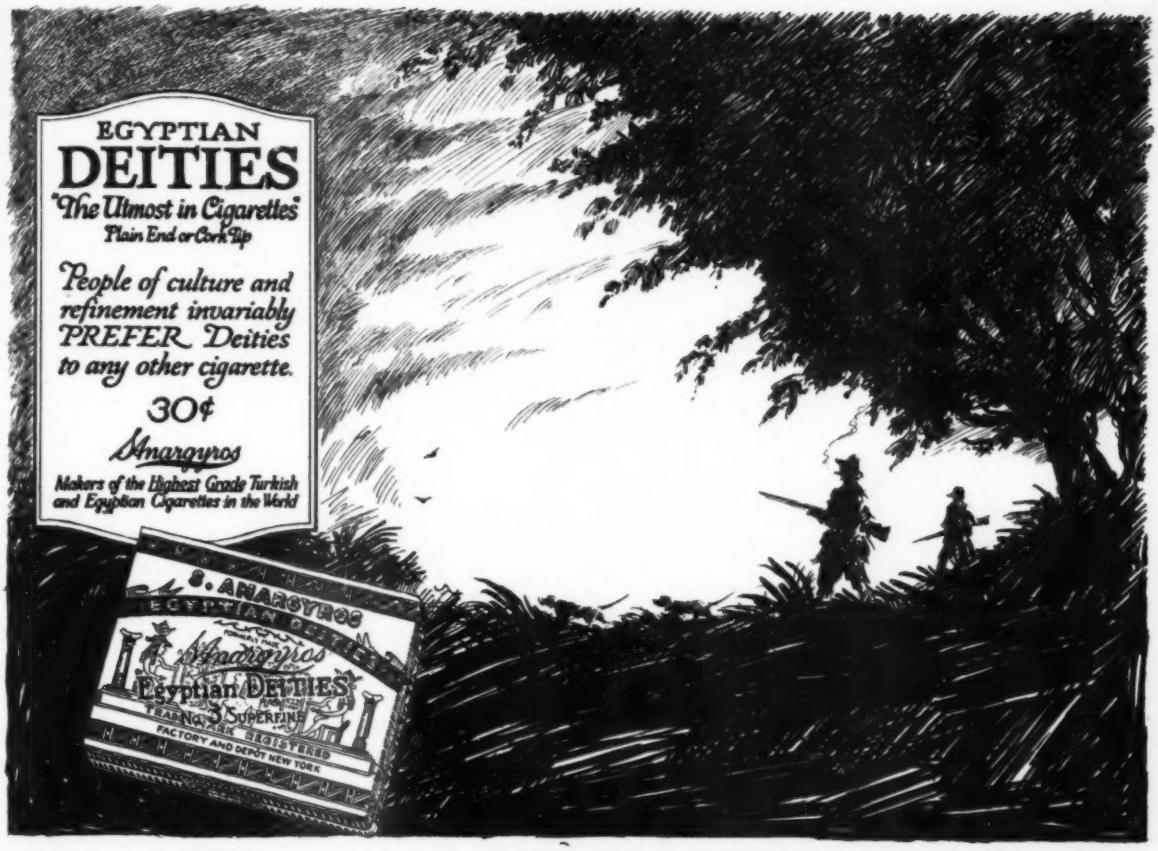
Our next victim was Elaine, a 25-foot open boat with three men aboard. We signalled to them to come alongside which they did but only after considerable maneuvering, forward and astern. This ship was not quick to answer her helm, to say the least, and required nearly the width of the Sound in which to turn around. Try as best they could they couldn't seem to get nearer the patrol boat which was in the center of the maneuvering circle. Finally we signalled to them to stay where they were and we ran alongside of Elaine. Lunch was on but we were not invited. On the fore and aft transom was a couple of opened cans of sardines, besides several bottles of 2 per cent. Three loaves of war bread completed the bill of fare. The owner was questioned as to his purpose of being out on a gasless Sunday, but refused to discontinue the eating of his meal of the sardines, etc. He simply held up at arm's length his Navy Department license. His two guests were also very busy with their meal and spoke not a word. Even when we told the owner that we were not interested in the subject of license or no license, at least that issued by the Navy Department, but wanted to know where they were bound, they still continued to put the eats out of sight and simply took their war zone passes out of their pockets for our inspection. They then began to explain in unison that they were out only for a sail and meant no harm, were not alien enemies, worked hard all week and saw no wrong in using their boat for a day's pleasure. We reasoned with them a moment and then their single lunger gave a cough and the bow of Elaine was headed homeward and the midday meal lay unfinished in the cockpit. This case was just one more example of the willingness of every motor boatman to comply with the wishes of the Fuel Administrator and conserve gasoline for the armies abroad.

The next boat to come up the Sound was a 32-foot cabin cruiser, named Baby. She had a man, his wife and two babies on board. We hailed him and had quite a time making him understand what all the rumpus was about. We finally succeeded and learned that they were on their way home from a three weeks' cruise. They reported that they hadn't bought any gas since the fuel request went into operation so they could see nothing wrong in running Sundays. Their tanks were full and the gas would be wasted if they didn't use it, so why not use it, they reasoned. As soon as the tanks went dry, they were to haul Baby out for the winter. We took their name and address and as they again shouted to us, "We ain't going to buy no gasoline," we gave them the signal to proceed.

So it went, all the day long—seventeen were stopped and inspected in our four hours on duty. A few of the patrols got more and some less. Altogether, 326 violators were picked up during the Sunday. All had excuses, no two alike, some good and reasonable ones but most of them of a doubtful nature. The stories they told were all interesting and of the boats we met on the Sound only one of them had a discourteous reply. Even this boat soon came to terms and the owner apologized for being hasty with his tongue.

Of all the seventeen boats not one could be called a yacht.

(*Continued on page* 64)



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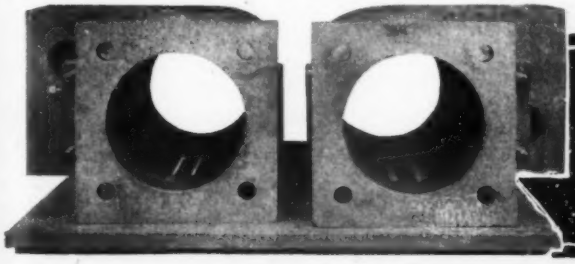

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Government to Protect Marine Industry

(*Continued from page 7*)

home requires that fully as much attention and regard be given to business as to the Army and Navy. An ambulance in the former reacts at once against a most successful military program. Hence the Government's determination to take active steps to see to it that all industries and manufactures are put upon a most efficient basis for the country's future needs requires hearty support on every side. The industrial problems of the country after peace is declared are as urgent and must be as correctly solved as the fighting problems which are now being considered and solved on the front in France.

Our country left without business or manufacturing at home at the close of the war will cause the country to be but little if any better off than when war was declared on the Huns. Such a condition would be greatly magnified when our 2,000,000 boys who are now abroad begin to return and look for their old jobs back again. That the soldiers now on the front know that their old jobs are awaiting them when they return is worth more to the fighting spirit and to the successful termination of the war than an entire Liberty Loan.

There is just one way in which the jobs can be kept open and waiting for the soldiers' return and that is by protecting business today and carrying it on along scientific and efficient lines and principally preparing for the future. This is to be the Government's attitude and the marine engine manufacturers have been asked to co-operate by keeping their organizations intact—in skeleton form if need be—and making plans for the future so that the economic balance of the world's greatest country may not be upset when the day of peace arrives.

The Government asked the marine engine manufacturers to name a committee of seven to represent the industry in all matters to be taken up with the Government and to authorize the committee to act for them. The committee elected at the recent meeting in Washington consists of C. A. Criqui, Eugene A. Riotte, James Craig, O. J. Mulford, C. M. Plank, J. A. Seymour, and Richard R. Young. The committee was authorized to elect its own chairman and as soon as its own organization was complete to take up with the War Industries Board the many questions of priorities, export shipments, essential Government ratings, standardization, labor exemptions, obtaining raw materials, transportation for foreign and domestic shipments, etc., etc., which have handicapped the marine engine manufacturers for a long time.

Among those present at the meeting were Walter L. Fay, H. G. Diefendorf, C. D. Durkee, Eugene A. Riotte, James Craig, J. J. Armory, A. Criqui, Al Houser, L. T. Snow, Richard Westcoat, R. E. Powers, Ira Hand, C. F. Chapman, Editor of MoToR BoatinG; Arthur Lathrop, C. A. Ross, R. R. Young, F. E. Davis, and others.

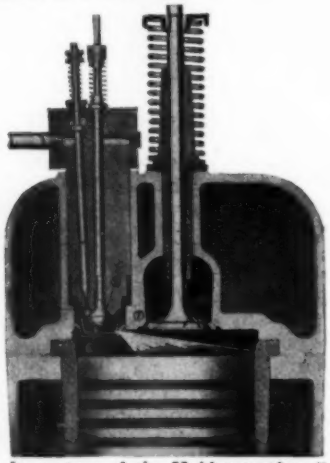
The Quayle Marine Oil Motor

(*Continued from page 31*)

be reached by removing the cylinder walls.

The cylinder head is provided with large water jackets about the exhaust valve and oil inlet and is cast separately from the other two parts of the cylinders. This, in connection with the large hand-hole plates in the crankcase, allows the easy removal of the pistons.

The crankshaft, camshaft, and connecting rods are drop-forged from carbon steel. All bearing surfaces are ground, as are the cams which are forged integral with the shaft. The valves are made up with cast iron heads welded to steel stems.



In motors of the Hvid type the oil first enters the cup (6) and then is forced through the narrow slot (7) in the form of a very fine spray

Lubrication is a combination of force feed and splash. In each crank pit is a trough into which the connecting rods dip and which holds the oil at a constant level. Each trough has a separate oil supply tube from the plunger oil pump.

Although every part of the engine was designed with an ample factor of safety, the weight is only 1,250 pounds, which is only fifty pounds per horsepower. This is a much lighter weight per horse-power than is found in most oil-burning engines.

Yard and Shop

(*Continued from page 36*)

Koto, a 35x9-foot bridge-deck cruiser that required more than 20 h.p., he purchased another 20 h.p., Kermath Vanadium and used the two as a twin-screw installation.

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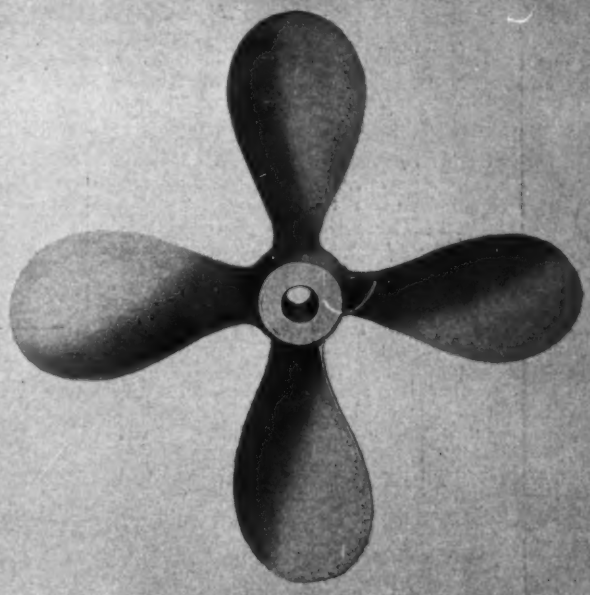

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A Concrete Example of a Concrete Boat

(*Continued from page 25*)

Colonial shop went at it with a hammer and cold chisel and soon had the old transverse engine beds out and the bottom smoothed up. Contrary to what is considered good marine practice the old engine bed consisted of two pieces of cast concrete *crosswise* to the boat, and hollowed out at the center to accommodate the base. Next, the concrete cross frame forward of the engine bed was cut away. Reinforcing steel was encountered but gave no serious trouble.

With everything cleared away, the two timber stringers for the new bed were carefully fitted to the curve of the bottom and secured in position by galvanized iron bolts through the hull. The timbers were bored for the bolts, then set in place and the bolt holes marked on the bottom. The holes were drilled through the concrete with a star drill with no difficulty from spalling or chipping and were made water-tight by using a washer and lamp wicking with white lead ..er the bolt heads.

A timber floor or cross bed was framed into the forward end of the stringers and securely bolted through the hull, making a most substantial engine bed. Owing to the method of installing the exhaust pipe on an up grade from the manifold to the hole in the stern it was necessary to lead the cooling water overboard by a separate pipe. This, together with the water inlet required two new holes through the side as the old water inlet was on the wrong side of the boat. No difficulty was experienced in cutting the new holes and the old one was successfully closed with some cement mortar.

Yard and Shop

(*Continued from page 48*)

U. S. Public Health Service Adopts Air-Drive Motor

To prevent the spread of contagious diseases the U. S. Public Health Service fumigates all vessels, on which such cases are found, with sulphur dioxide and hydrocyanic acid gas. In order to free the ship from these poisonous gases after fumigation it is customary to force large volumes of fresh air down into the holds.

Electric fans and electric pressure blowers have been tried, but they proved inefficient and the wires were troublesome to handle. They then tried a portable gasoline-driven outfit. This consisted of an Aerothrust outboard air-drive motor with 32-inch propeller as built by the Aerothrust Engine Co., of La Porte, Ind., and a 28-inch muslin flue leading down into the hold.

This proved successful so the motor was modified to run in a horizontal position instead of vertical, and mounted on a frame to fit over the hatch. This overcame the necessity of having a bend in the flue and tests showed that 8,500 cubic feet of air per minute was discharged into the hold of a ship through a flue 18 feet long. The entire apparatus weighs less than 100 pounds and can be easily carried by two men.

My Ideal Runabout

(*Continued from page 24*)

BOATING, I think the ideal water-tight hatch has been planned, as shown in the March issue, 1917, and many other suggestions were adopted from my treasured collection of back numbers.

Ample ventilation for the motor compartment is provided for by the cowl ventilator, the air sweeping through under the cockpit floor and escaping through the grating below the stern seat. As shown in the plans, the cockpit is not sheathed, but is lined with light strips spaced three-fourths of an inch apart, allowing for a free circulation of air to all parts of the hull, effectually preventing dry rot. The hull is finished in black enamel, which with the rich mahogany of the bright work and light decks should make a very handsome boat. All deck fittings are of polished brass.

As the drawings show, the house or top is of very light construction and the windows drop down out of the way when the protection is not wanted. The windshield swings up overhead out of the way. I feel that this shelter is going to be a great comfort and it will also give a good dry place to store cushions, etc., when the boat is not in use, as there will be a khaki curtain closing the cabin from the rear.

The boat is small and I decided that it would be worth while and not prohibitive to build it of the best materials, not only for their lasting qualities but also for the joy of beautiful finish. As the drawing shows the bright work is all mahogany except the shear molding, which is of oak, stained, to match the mahogany. I thoroughly dislike an imitation, but I know from experience that this protecting strip gets a lot of hard wear in spite of all the care one can use. As you will see, the hull is very strongly and substantially built with heavy frames and three-fourth-inch planking. A light boat is all right until a leak develops and the trouble comes, and the first thing you know, she is a member of your family. (I know from bitter experience.) The forward deck is canvased, for in a small boat it is the only deck that does not leak—the after one is very small and is finished bright.

Proving the Motor's Worth

(*Continued from page 30*)

are the electrical instruments for measuring the power output as well as controlling the load against which the engine under test is running.

As enough electricity is not used about the plant to absorb the entire output from the dynamometers, sets of resistance grids are mounted in cabinets in back of the switchboard to absorb the current generated. As the speed of the motors being tested is often rather high and all the engineering data can be obtained by simpler means the time-honored practice of taking indicator cards has been discarded. Indicator cards taken from engines running at high speeds never gave reliable or satisfactory results.

A Day with the Gas Slackers

(*Continued from page 44*)

Most of the boats were of the home-made variety and not one person aboard was a member of a club. Some ninety per cent. of the craft were powered with two-cycle motors of doubtful reliability. One police patrol boat was bawled out by the crew of one boat it had stopped for daring to stop it as it had taken 35 minutes to start the motor originally. According to the officers' story, it took nearly double that time to get her balky power plant underway again after he had finished.

Another one of the reserve patrol boats was chased for miles after it had gone off duty and was bound home by a boat of the regular police force. The chase would probably have been on yet had not the reserve officer voluntarily stopped and waited for the regular cop to catch up. Then he was asked while the latter was still some distance off, "Well, young man, what's your excuse for being out today?" Yes, and what may be your own reason, too," replied the reserve lieutenant, as the regular's boat crashed into his own. But just then the sunlight struck the reserve's gold badge and it must have reflected in the bluecoat's eyes. He bowed a humble pardon till his helmet almost struck the deck. In so doing he noticed the green and white police flag flying at the stem of the reserve's boat. The situation became tense but just then Susie, a little 18-foot put-put putted by and the regular officer was off to get Susie.

No one is more in favor of conserving fuel than MoToR BoatinG. However, we do believe that a more fair and equitable arrangement could be worked out by the Fuel Administrator, than the one put into effect in August, when the motor boatmen had to bear the brunt of the burden and were in reality the smallest users of gasoline of all the automotive vehicles.

With the hope that the Fuel Administrator would consider some arrangement or some revision of the adopted plan for the motor boatman's short season we addressed a letter to him in September, which read as follows:

"After four gasless Sundays have been observed by probably ninety-nine per cent of the motor boats in commission we should like to respectfully request that your administration's ban on the use of gasoline in small motor boats be removed for the next four Sundays, or during the Sundays in the month of October, 1918.

Our reasons for making such a request of you are as follows:

The use of gasoline fuel for the internal combustion engines in motor boats is an entirely separate and distinct problem from the use of similar fuels in automotive vehicles on land. At the present time, the only motor boats which are in commission are very small ones powered with low horsepower engines and owned by what might be called the poorer class of working people. The total amount of gasoline used in these small craft on a Sunday is almost negligible compared with the total used on land.

The boating season, as you know, is a very short one, five months being the greatest time which a man can use his motor boat in these localities. The season is practically over by November first of each year and many motor boats go out of commission by the middle of October. This means that the season of 1918 has only two to four weeks to go. Therefore, if the ban on gasoline is continued it will mean that the motor boat users will be unable to make use of their craft until the season of 1919 opens, which, under ordinary circumstances, will not take place until June 1, 1919.

The only day which the average owner of a motor boat at this time of the year has to make use of his craft is for a few hours on Sunday. Motor boats, as a rule, are all kept and moored a considerable distance from where the owner lives, which necessitates quite a journey from his house to his boat and eliminates any possibility of making use of his boat during the hours after business on week days. Furthermore, the present regulations of the Navy Department and Department of Commerce forbid the navigation of motor boats on the naval waters between sundown and sunrise. Consequently, if a man is denied the use of his boat on Sunday it means that he is denied the use of it at all times. This is a condition decidedly opposite from conditions on land, where a man may make use of his car to advantage every evening in the week and thereby consume a great deal more fuel during the evenings than the average motor boat would use on several Sundays. This is not a theoretical condition but a practical one which exists in all localities in the East where motor boats are used.

The conditions under which motor boats in commission at the present time are used are such that we believe their use during

(*Continued on page 66*)

A Day with the Gas Slackers

(*Continued from page* 64)

the next few Sundays would be justified. As mentioned above, the motor boats are owned by poor people who dwell largely in the densely populated sections of the city and who use their boats to give themselves and their families the only form of recreation during the week and their only chance to get out into the open, fresh air. The trips which the owners take on Sunday are short. Instead of running miles and miles, as many car owners do, the boat owner simply cruises a short distance from where he keeps his boat. He then comes to anchor and spends the greater part of the day in healthful recreation, either aboard the boat or on a nearby beach with his family. To deny these people such use of their boats is working a decided hardship upon them which actual living conditions do not permit them to enjoy on other days than Sundays. In addition to this, these owners generally make use of their boats in trips of this kind for fishing purposes, spending the time when their boats are at anchor in obtaining fish, the aggregate of which greatly relieves the food situation. The time actually spent at fishing is far in excess of that during which the boat is under way.

The fishing situation has an important bearing on our request to you. During the month of October, fishing in the coastal water, as you are probably aware, is the best of any month of the year. For the best fishing it is necessary to be on hand by daylight, and in order to accomplish this, most boat owners leave their anchorage Saturday night and anchor on the fishing grounds all night. Naturally, if the motor boat owners are forbidden or requested not to use their boats, it will prohibit the catching of any fish during the remainder of the year by these poor people, as there is no other day in the week available for the working class when the man can make use of the time best suited for fishing.

The above conditions are not based upon assumptions or theories, but are the result of actual personal study of the motor boat field. The writer is a captain in the Motor Boat Police Reserve in New York City, and during the last two Sundays has been on active patrol duty observing the use of motor boats in violation of your fuel order. On Sunday, September 15, he personally observed seventeen motor boats under way on Long Island Sound, each of which was stopped and questioned as to the owner's reason for being under way. While none of the seventeen cases might be rated as being out for business, yet fully ninety per cent of the excuses offered showed that the desire to observe the fuel regulation was sincere and that their reasons for being out were justified when the personal equation is considered. One hundred per cent of the boats observed under way were owned by poor persons residing on the east side of New York City. They all had their families with them, their boats were all small and the power of their engines was such that the average amount of gasoline used by each of the boats on this particular Sunday's trip was not over one gallon.

Fishing was the main excuse for these boats being out, while a majority of the others claimed that it was a physical necessity in order to obtain relief from the drudgery and routine of the six working days of the week. Several of the boats had purposely gone out Saturday night, staying out all night so as to be on the fishing grounds early Sunday morning and thereby, as they expressed it, be only half guilty of violating the fuel request.

In regard to the class of motor boats in commission at the present time, ninety per cent of them are powered with motors of less than 20 actual h. p. A majority, we think, have motors of even less than 10 h. p. There are absolutely no motor yachts in commission this fall, and those having power plants in excess of 20 h. p. are few and far between. It seems to us that some special ruling might be made for those small boats powered with motors of less than, say, 20 h. p., and made use of only for a limited number of hours during the week, which might be on Sunday at the discretion of the owner."

The answer which we received had the tone of a circular letter which might be sent to all objectors and not an individual reply to our own letter. However, the reply was to the point but did not appear to represent a study of our letter or the conditions set forth therein. The Administration's point was that gasoline must be saved and it was of little interest how or who suffered. Under no circumstances could a special exception be made for any interests.

Not being satisfied with such an answer and believing that the interests of the motor boatmen should receive consideration by the authorities, the writer made a special trip to Washington to point out to them why and how the existing regulations were unjust from the standpoint of the boatmen. We were courteously received but the authorities absolutely refused to discuss or argue our points.

They admitted that should they enter into an argument that they would probably have to admit that our points were well taken. For that reason, they had made it a hard and fast rule not to argue with anyone. The regulations were only in the form of requests, we were told, and no one was bound to obey them if they did not see fit.